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## In This Issue

### General American Replaces Steam with Diesel Switchers . . Page 436

An article telling how this company, through the use of Plymouth Flexomotive  
units, has obtained excellent results in classifying trains of thirty or more cars.

### Evolution from Steam to Electric Traction . . . . . 440

A presentation of the changes made and the step taken by the Pennsylvania  
to improve its electric operation.

### Illinois Central Goes to Trucks . . . . . 447

A Motor Transport Section article describing the manner in which this road  
solved a complicated branch line problem by rail-highway co-ordination.

#### EDITORIALS

Economic Preparation for War.....	429
The Motor Transport Section.....	430
Are We Behind in Crosstie Renewals?.....	431

#### GENERAL ARTICLES

What Will the Traffic Bear?—32.....	431
Railroads Roll Up Their Sleeves.....	433
War Fever Raises Prices; Increases Railway Buying.....	434
British Roads Take On Their War Duties.....	435
General American Replaces Steam with Diesel Switchers.....	436
Causes of Low Tie Renewals, by Charles E. Smith.....	438
Evolution from Steam to Electric Traction.....	440
What Wrecked the Streamliner City of San Francisco?.....	444

#### MOTOR TRANSPORT SECTION

Illinois Central Goes to Trucks.....	447
Improving California Service.....	448
Gigantic Job Completed.....	449

#### NEWS . . . . . 450

#### OPERATING REVENUES AND EXPENSES . . . . . 462

#### FREIGHT OPERATING STATISTICS . . . . . 463

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*Engineering Index Service*

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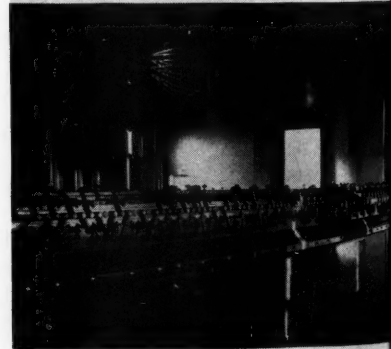
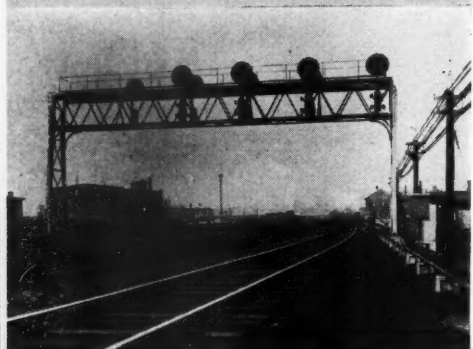
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## **CONSOLIDATING INTERLOCKINGS**



**T**WENTY-ONE cases of consolidation of two or more interlockings, studied by the A. A. R. Signal Section, showed a net average annual saving of 22½ per cent and provided greater flexibility for traffic. In many cases the savings effected paid the cost of installation in two years or less.

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## RAILWAY AGE

# Economic Preparation for War

Polls that have been taken indicate that an overwhelming majority of the American people are opposed to the United States entering the war in Europe, but that an almost equal majority believe we will be drawn in. Consequently, an overwhelming majority favor adoption of all military measures necessary to prepare us for the worst.

Apparently, however, few recognize that in preparing for war there is great need of doing something besides adopting and preparing military measures. This something is the adoption by government, business and labor of measures that will restore the nation's economic health and strength. It has suffered enormous losses by ten years of depression. It is far from prosperous now according to all standards accepted before this depression; and there is much speculation about the probable effects of the war on our business. Many seem to believe that, whether we enter it or not, the war will afford temporary or even permanent solution of our pending great economic problems. They are terribly mistaken; and, perhaps, instead of speculating about the probable effects of the war on our business, we might better be speculating about the effects that continuance of our country's present economic condition probably would have on our participation in the war if we should be drawn into it.

### Economic As Well As Military Preparedness

In the long run the effectiveness of a nation's participation in war depends quite as much, or even more, upon its *economic* power and preparedness as upon its *military* power and preparedness. This always was true; and it is more true now than ever. Its economic power and preparedness depend, in turn, on its actual capacity to provide all the things required adequately to provision both its civilian population and its fighting forces. And "providing" these things includes both actually producing and distributing them. The existing means of production and distribution in the United States may have a theoretical capacity 50 per cent greater than is now being utilized—illustrating that how much actually will be provided, whether in peace or war, depends not merely upon the theoretical technical capacity of a nation's means of production and distribution, but also upon how much brains are employed in utilizing it.

The failure throughout ten years of depression fully

to utilize and increase the nation's productive and distributive capacity has been due entirely to economic causes—to economic policies of government, business and labor which have prevented the law of supply and demand from working normally—which have prevented *supply*, i.e., production, from increasing normally by preventing *effective demand* from increasing normally.

Consequently, the United States is today in *relatively* the worst economic condition to engage in a war than it ever has been in its entire history. The means of putting it in sound economic condition should be adopted and carried out concurrently with the adoption and execution of the means of putting it in a stronger military condition. Unless the policies adopted are calculated to solve its economic and military problems concurrently they will not be best adapted to solving either of these classes of problems.

### Need of Encouraging Mass-Transportation

Take the problem of transportation, much the most important part of distribution. Means of transportation must be put in condition and co-ordinated to meet both civil and military needs fully if we are to be prepared to participate with the greatest practicable effectiveness in any war in which we may become engaged. This means preparation for use of mass-transportation to the utmost; for mass-transportation, like any kind of mass-production, means utilizing the least practicable human labor to get any given result.

There are two important means of mass-transportation—railroads and ships on deep waterways. Probably pipe lines should be included as a third. It is both economically and militarily unsound for government to follow policies giving artificial advantages to other carriers over the mass-transporters, because this increases the total cost the public must bear to get a given amount of transporting done. Such policies become especially indefensible when there is danger of war, because, by artificially diverting traffic and earnings from the mass-transporters these policies hinder maintenance and development of mass-transportation capacity which will be imperatively needed in case of war.

There could be no greater economic or military nonsense than to talk as if truck transportation could serve to any considerable extent as a substitute for rail transportation in case of war. It would take too many men to move any given amount of freight by truck



when the nation needed all its manpower. In case of war trucks would immediately become merely auxiliaries of the railways; the capacity of the railroads, of ships on the Great Lakes and the ocean, and of pipe lines would become the country's real transportation capacity for both civil and military purposes; and if these mass-carriers could not meet all the demands made the country simply would not have enough transportation—as was actually the case in 1917 and 1918.

### No Possible Need of Government Operation

Consequently, the need for the government squarely facing and dealing with the railroad problem has become greater than ever for reasons of both peace and war. And how should the government deal with it? Not by adopting, or even preparing for, government operation. Experience in the last war proves that to anybody who knows the facts. There was not a thing done then under government operation that could not have been done and better done under private operation, *especially if government had given private management opportunity to do it*. In 1917 under private operation the government did a great deal worse than nothing to help the railroads do their job; and yet they handled 8 per cent more freight traffic than their previous maximum in 1916.

In 1918, the first year of government operation, on the other hand, the government issued numerous priority and other orders to make the job of its Railroad Administration in moving traffic easier; it made advances of a billion dollars a year in rates, after having refused advances to private management in the previous year; it increased operating expenses more than it increased rates, thereby incurring a deficit—and by all these means it succeeded in increasing the amount of freight traffic handled 2 per cent. Every single fact in the history of railroad management during the last war argues powerfully for (1) doing everything possible, while the nation is still at peace, to put the railroads in condition to meet the largest demands that may reasonably be expected to be made upon them in case of war; and (2) working out and adopting definite and complete plans for continuing private operation in case of war with such government co-operation and supervision as may be demonstrably desirable.

### Free Enterprise Provides Economic Power

As regards other industries as well as transportation, the effort should be to put them economically in the best practicable condition to serve the American people, whether in peace or war; for if they are put in the best condition to serve the nation in peace, that will put them in the best condition economically to back its military efforts in case it engages in war. And all experience shows that the best way to put a nation in a sound economic condition is for government to encourage free private enterprise rather than to burden

and interfere with it. There will have to be much government interference in case of war. Undoubtedly there will be more of it than is needed. But as long as the nation is at peace the government can and should make all necessary military preparations while reducing rather than increasing its interference with private enterprise—for private enterprise thrives on freedom.

These are old-fashioned doctrines. They advocate old-fashioned policies. They have one merit, however—viz., that the economic policies they advocate are those which actually prevailed in this country before the Great War and which created the wealth and the productive and distributive capacity that enabled it to participate with such vast power in that war. We doubt if they will be revived. The entire world seems possessed by a mania for increasing government economic functions and activities although all human experience, especially since the Great War, has demonstrated that such increase of government functions and activities accomplishes nothing but ruin. But we think those who believe in policies that all human experience has proved are sound should be at least as courageously outspoken in advocating them as others are in advocating policies that all human experience has demonstrated are unsound.

There seems great danger that because of the war in Europe there will be a weakening or cessation of the attacks upon unsound economic policies in this country which seemed to be becoming successful before the war began. The attacks upon these policies should not be abandoned or even weakened because of the beginning of the war in Europe. We are still at peace; and as long as we are at peace all efforts to totalitarianize our country, as well as all efforts to get us into war, should be resisted to the utmost. If we get into war it will probably be too late to save private enterprise; but at least no effort should be spared to prevent further encroachments upon it in time of peace.

## The Motor Transport Section

For the last year developments in rail-highway co-ordination have been described in the *Railway Age* from week to week, as they have developed, in common with other activities in the railway field. In response to requests from our readers, however, we are re-establishing the Motor Transport Section as a feature in the fourth issue of every month and are concentrating therein major developments in this phase of railway operations during the month.

Long before the former federal co-ordinator began urging that the railways investigate the possibilities of rail-highway co-ordination—in fact, years before that office was created—the *Railway Age* began directing attention to those co-ordinated uses of trucks and buses that were established in various places by the railways.



In taking this action the *Railway Age* believed that it could best promote the most intelligent and efficient use of highway equipment as an adjunct to railway service and thereby extend its use in those places where its special characteristics fostered most efficient transportation.

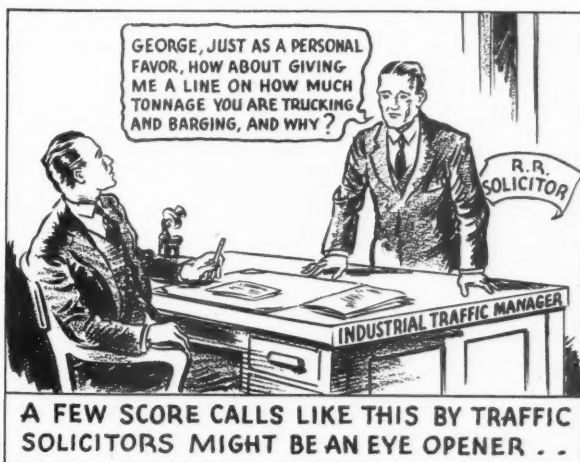
It is hoped that the re-establishment of the Motor Transport Section as a special monthly feature of the *Railway Age* will dramatize this development more effectively and thereby continue this encouragement of rail-highway co-ordination, particularly at this time when this phase of railway operations is showing renewed activity despite restrictive and hampering regulation.

## Are We Behind in Crosstie Renewals?

During the early years of the depression the rate at which crossties were renewed was reduced very sharply and, while some recovery has since taken place, the renewals on the majority of the roads still remain at a comparatively low level. This condition has frequently given rise to the question whether the present low rate of crosstie renewals on most railroads is conducive to a standard of maintenance commensurate with the desired efficiency and safety, or whether the condition of crossties today does not, in general, represent a considerable

## What Will the Traffic Bear?—32

There is an enterprising freight traffic representative of a trunk line railroad in a Mid-western city who does not rely too strongly on the cigar-pushing, dinner-buying technique (although he is a charming host who has the confidence of shippers). **This solicitor does not consider that his day's work is done when he makes a good showing merely against his railroad competitors.** A carload lost to a truck or a barge bothers him just as much as, or maybe even a little more than, if an-



other railroad takes it away. Grown weary of fighting in the dark against losses to trucks, this solicitor recently decided to go out and learn for himself who was shipping by truck and why.

In a comparatively short while he unearthed annual movements by truck totaling eighty-four million pounds. He called only on shippers of large volume and concerned himself only with traffic which could move by his railroad.

There is no telling how much business lost to the railroads he would have unearthed if he had called on both large and small shippers, and determined from each of them the total amount they were shipping to all destinations by all other forms of transportation.

With but few exceptions the diverted traffic

which this solicitor uncovered consisted of what is nominally known as back-haul carload traffic moving for distances beyond 200 miles.

Probably there is not a pound of this traffic that the railroads could not handle profitably for a total rate materially less than the average truck cost. If all of the freight traffic forces of the railroads should develop a similar curiosity, and canvass the entire shipping public, the information thus gained would be of inestimable benefit to the railroads in their effort to regain the traffic which they have lost to competing forms of transportation. They would then know definitely how big the prize is which they stand to win—and they would also find out specifically the steps they must take to win it. Information thus gained would unquestionably indicate that the following steps need to be taken to get back this business:

(1) Railroads must utilize their economic superiority by basing their competitive rates on their own costs wherever these are below trucking costs.

(2) Railroads should protect their traffic and arm their solicitation forces by **insisting to the I. C. C. and state commissions that no transportation agency be allowed to go below its total economic costs (profit not included) of producing the particular service in taking traffic away from another agency of transportation**, and that such costs should be determined by the use of average loaded-to-empty movement of such traffic, by all forms of transportation.

The railroads are the undeniable economic superior to their competitors on the large proportion of the business these competitors are now handling. But traffic flows according to rates—not according to abstract costs. There is no way of getting traffic back on the rails—no matter how much the railroads are economically entitled to it—unless competitive rates are made to reflect the comparative costs of the agencies competing for the business.

**Since the railroads have the edge on the great bulk of competitive traffic whenever competitive rates are based on costs, they have everything to gain by so basing their own rates; and by demanding that the regulatory authorities require their competitors to do the same.**

degree of deferred maintenance. Since, because of the war abroad, the railroads may shortly be called upon to carry a highly augmented volume of traffic, this question of deferred maintenance in tie renewals—as in other phases of track and equipment maintenance—is assuming a new importance.

On another page in this issue, Charles E. Smith, vice-president of the New Haven, reviews the crosstie situation on his road and explains why it is possible to keep the tie renewal rate on that road at a low level without incurring deferred maintenance. Among the reasons given is that because of the inauguration of a treating program the New Haven is now at a point in its tie-renewal cycle where replacements are at the minimum. The New Haven is not alone in this condition. It is a fact, however, that many other roads, including some of our largest lines, began to install creosoted ties on a large scale shortly after the turn of the century, with the result that their tie-renewal curves have now passed their low points and are approaching their more permanent levels. This means, in brief, that on these roads the tie requirements cannot be expected to drop as low as on those roads which, having entered upon the large-scale use of treated ties at a much later date, are now enjoying a temporary period of reduced tie requirements. Thus, where the tie-renewal rate has dropped to an abnormally low level on roads that were pioneers in the use of treated ties, it seems reasonable to conclude that the present tie condition incorporates some degree of deferred maintenance.

The extent to which the renewal of ties has been reduced below actual requirements in recent years is a question regarding which there is little agreement. While it is contended in some quarters that deferred expenditures in this classification have been slight, not a few responsible maintenance officers are privately expressing a growing concern over the situation. During 1938 the tie renewals in all tracks of the Class I roads of the United States were such as to pre-suppose a tie life of about 30 years. While it would not be possible even to attempt to estimate the average life of ties in track today, it is quite obvious that it is substantially less than this figure. Even under the most favorable conditions this life can scarcely be expected from creosoted ties, and when it is considered that the percentage of untreated ties in track is still far from negligible, it becomes all the more apparent that the average life of all ties now in service falls far short of 30 years.

There is another factor in the situation that is worthy of consideration. As an economy measure not a few railroads have removed from service trackage that could be dispensed with while the volume of traffic being handled remained at a low level. Such trackage is by no means inconsiderable and includes both multiple main tracks, sidings and yard tracks. In fact, entire yards have been removed from active service and used simply for the storage of cars. This means, of course, that no attempt has been made to maintain these idle tracks, with the result that their component parts, and the ties

in particular, have undergone extensive deterioration. Hence, if an upswing in business should occur of sufficient volume to require the restoration to service of the idle trackage—and such an increase is now within the realm of probabilities—it is obvious that extensive tie renewals in such tracks would be required, thereby considerably enhancing the demand for crossties.

There is another element in the situation that may have an effect in making necessary increased tie renewals in the near future, and that, as pointed out by Mr. Smith, is the fact that a considerable number of lines, such as the New Haven, will soon pass out of the present period of minimum tie requirements and will enter upon a phase of the tie-renewal cycle requiring sharply increased renewals. For instance, Mr. Smith points out that the renewals on his road may soon be as high as 125 ties per mile per year, or nearly double the present rate.

Thus, it seems reasonable to conclude that, for the country as a whole, present tie renewals are not sufficient to meet actual requirements. Eventually, therefore, and perhaps sooner than is generally expected, it will become necessary to make up the deficiency.

\* \* \*

#### **Freedom of Railways to Compete with Trucks— Not Regulation—Is Australian Cure for Chaotic Transport**

Railwaymen are no doubt familiar with the oft-repeated argument that the problem of rail and road competition would be solved by the creation of an independent tribunal to fix freight rates, reads a statement by the Victorian Government Railways. It is appropriate, therefore, to emphasize that, in the opinion of the commissioners [corresponding to the board of directors of a private road] the solution of the problem cannot be looked for in that direction. So long as thousands of road vehicles are permitted to engage in competitive carrying, it is futile to talk about fixing freight rates. By this time, everyone must know that the conditions already prescribed by law to govern the conduct of hauliers are honored more in the breach than in the observance.

The prescribed industrial standards are commonly flouted, despite the efforts of the authorities to enforce them. It would be even easier for hauliers to evade any prescribed schedule of rates. Numerous subterfuges could, and no doubt would, be employed. **In any case, rates fixation would not touch the numerous vehicles used by traders and others for carrying their own goods in the course of trade. These vehicles constitute a serious source of competition.**

The existing policy of transport regulation is directly opposed to the principle of stability of rates. With the widespread duplication of transport facilities now permitted, the obvious corollary is competition in rates.

The only reason for the existence of the long-distance road competitors is that they have offered lower rates for certain classes of goods.

The railways must meet those rates or lose the business, and must also be able promptly to quote rates sufficiently attractive to satisfy traders and merchants that they will obtain no advantage by using their own vehicles instead of the railways for the carriage of their goods. The important thing is to obtain the business. Its loss by the railways can only mean one thing—even greater deficits than ever.



# Railroads Roll Up Their Sleeves

Promise the public that they will be ready to meet all demands,  
and prepare energetically to do so

One of the most heartening episodes of railroad history gave promise this week of repeating itself. Back in 1923, it will be recalled, the carriers were faced with rapidly growing demands for transportation—and all they had to give it with was a plant sadly dilapidated by government operation and the 1922 shop strike. But the executives of the member roads got together in April, 1923, surveyed their condition realistically, and then promised the public that they would forthwith take the necessary steps to provide the quantity and quality of service required. How handsomely they made good on that promise is a matter about which *Railway Age* readers do not need to be reminded.

Now, this week, once more, the member roads got together in the face of a threatened emergency; and the following tells what they did—

**T**HE country was assured this week that its railroads would be in a position to handle adequately "any increased business now in prospect." This statement was made after the member roads of the Association of American Railroads had held a special meeting in Washington, D. C., on September 19 to discuss the present and prospective increase in railroad business. The special meeting was called by the board of directors of the A. A. R. when they met in Washington on September 15 to consider the effects of the present emergency on the nation's railroads.

At the conclusion of the meeting it was announced that new freight cars placed in service or ordered during 1939 will exceed 46,000. This includes approximately 25,000 additional new cars whose purchase is planned, and 21,260 new freight cars already ordered or placed in service during the first nine months of 1939.

To insure that there will be adequate rail transportation for whatever contingency may arise, the member roads of the A. A. R. agreed upon a policy of immediately putting into repair their cars and locomotives which have not been needed to handle current business. In addition, the statement pointed out, as traffic and earnings justify it, additional equipment will be ready to meet demands which may develop.

## Spending Money "On Faith"

"The railroads are putting themselves in readiness in advance of demand," the A. A. R. statement continued. "They do this in spite of the fact that of late years traffic has not required and earnings have not been sufficient to permit them to keep all facilities in immediately serviceable shape. As they did in 1923, however, railroads have determined to spend money which they have not earned in order that they may meet a public need, on the faith that there will be hereafter a square deal in public transportation policies.

"The railroads enter upon this program with full knowledge that there are fewer freight cars and engines in the United States than there were in past years. Present-day equipment, however, has more capacity and greater efficiency than the larger number of units in which the business was handled twenty years ago. As compared with 1918, for example, the average car has eight tons more carrying capacity, and the average locomotive has 43 per cent more pulling power. Freight trains move more than 60 per cent faster, on the average, than they did then, and the hourly output of transportation of each train averages more than twice as much as at that time.

## War Failure Was in Unloading

### Freight, Not Its Movement

"When the United States government took over the operation of the railroads, at the end of the year 1917, there was much congestion and delay in the movement of freight. Naturally, this was referred to as 'car shortage' and was ascribed to a supposed failure of railroads to move the tonnage. Actually, the failure was not in moving freight, but in unloading it. Cars were loaded for shipment to the North Atlantic seaboard when there was no place to unload them. As a result of this situation, largely beyond control of the railroads, yards and tracks for hundreds of miles back from the seaboard were choked with cars standing under loads. Cars were used as places of storage instead of means of transportation, resulting not only in the loss of use of the cars but in congestion of tracks and terminals.

"War-time operations and the insufficient earnings of the 1921 depression produced a situation on the railroads not unlike that of today. In the spring of 1923, however, faced with the prospect of rising traffic, the railroads met, in much the same way in which they have met today, to consider ways and means of meeting, adequately, efficiently and economically, all anticipated demands of commerce.

## The Promise of 1923 Has Been Kept Superbly

"As one result of the program inaugurated at the meeting in 1923, there has, from that day to this, been no general shortage of railroad transportation capacity on this continent. In several years since then the movement of freight has exceeded that of the peak of the war year of 1918, and in every case it has been handled without car shortage, congestion or delay.

"In 1929 the railroads handled 19 per cent more business than in 1918, with no increase in the number of cars. Further increases in operating efficiency make it possible now to handle a 1929 business with 350,000 fewer cars than were used in that year, or a 1918 tonnage with 600,000 fewer cars than were required then.

"This is due in part to the tremendous investment which has been made since 1923 in better railroads—not only better cars and engines but, of equal or greater importance, better tracks, better bridges, better signals, bet-



ter terminals, better shops, better facilities of all sorts. Approximately nine billion dollars has been spent for such purposes, resulting not only in better service but also in great gains in efficiency and economy.

"The greater capacity of today's railroads is due also to improved methods of operation. In part these are made possible by better plant and equipment; in part by the new methods of controlling the flow of traffic which were developed out of experience and are made effective through the organized and active cooperation of shippers and railroads.

#### Shippers' Boards an Important Factor

"A distinct factor in the changed conditions of railroad operation are the thirteen regional Shippers' Advisory Boards. These boards, which were created in meeting the difficult transportation situation of 1923, have continued their active work and are today thoroughly organized as agencies of cooperation.

"Terminals and tracks will be kept open, and cars will be kept moving, should any tendency to congestion show itself, through the nation-wide permit system of the Association of American Railroads developed since 1920. This system will prevent the accumulation of freight in cars beyond the ability of the receiver to unload promptly. Similar regulations no doubt will be applied by the appropriate government authorities to government freight, if need should arise.

"The railroads are and will continue to be ready to meet national needs."

#### Jesse Jones Foresees Large Equipment Purchases

Jesse Jones, federal loan administrator and former chairman of the Reconstruction Finance Corporation, announced at a press conference on September 18 that 15 to 20 railroads had arranged for \$125,000,000 of equipment purchases during the past 60 days and were considering spending as much as \$75,000,000 during the next six months for equipment repairs. He also said that he thought there would be some more orders for new equipment.

Mr. Jones went on to say that the R. F. C. would make loans of about \$25,000,000—with private banking sources providing the remainder. He indicated that the R. F. C. would make equipment loans to the Illinois Central, the New York, New Haven & Hartford, and the Erie but that the exact amount of the loan in each case had not been determined.

He said that he believed that there would be additional rail equipment purchases because of a combination of reasons. In the first place, the railroads heretofore have been reluctant to buy equipment that they did not have to have. Secondly, there has been a reasonably general upturn in traffic and general business during the past six to eight months. Thirdly, he felt that there was a likelihood that more traffic would be forthcoming due to war conditions.

At this point he declared emphatically that he believed the railroads could handle 50 per cent more tonnage by repairing equipment which they now have and added that he was convinced the carriers could keep ahead of the demand in their repair programs.

#### R. F. C. Has Plenty of Money, If Roads Need It

"The railroad outlook is now more favorable than it has been for several years," the Federal loan administrator declared. "Business has been picking up rather generally and the prospects are bright for additional

traffic." He felt that the railroads had done a pretty good job considering the small amount of revenues that they have had during the last few years.

Most of the lines, he pointed out, are getting their money privately at lower rates than the R. F. C. can provide. He added, however, that interest rates naturally would harden and that carriers which did not have private commitments might have to call on the R. F. C. The R. F. C., Mr. Jones asserted, was in a position to advance around \$100,000,000 additional for new railroad equipment.

"The railroads realize that they may be called upon to handle increased traffic," Mr. Jones concluded. "They are thoroughly alive to their responsibility in this emergency, if this can be called an emergency."

## War Fever Raises Prices Increases Railway Buying

**A**LTHOUGH it is less than a month since German armies invaded Poland and since Great Britain and France declared war on Germany the hostilities have already increased the prices of some railroad materials and have given new impetus to railway buying.

Unexpired contracts are protecting railroads against increases in some material costs for the present and tension over iron and steel prices has been relieved appreciably by the announcements of the steel companies since September 15 reaffirming present prices for shipments up to and including December 31 for delivery and consumption in the United States. This announcement applies to hot rolled carbon and alloy steel bars, plates, structural shapes, steel sheet piling, hot and cold rolled sheets, hot rolled strip, and standard rails which the railroads buy in large volume. However, the mills are now paying \$23 per ton, or \$2 more per ton for pig iron than a month ago, and heavy melting steel (barometer of iron and steel scrap) has risen from \$13 per ton a month ago to \$19 and \$20 per ton at present, the highest in two years. This means that railroads are now receiving from \$50 to \$200 more per car of iron and steel scrap than last spring, but it also means that steel mill costs have been increased by increases in the costs of raw materials. Steel mill operations have been increased to an average of 80 per cent of capacity, as compared with 45 per cent a year ago and some mills now have more business than they can handle the rest of the year.

While basic iron and steel prices remain unchanged for the present, concessions which were made to railroads and manufacturers previous to September 1 have been discontinued and the refusal of mills to quote prices on deliveries beyond December 31 gives iron and steel prices more strength than at any time in the last 18 months.

Meanwhile sharp advances in the price of raw copper, lead, tin and zinc, raw cotton and rubber have already been reflected in the prices of finished materials. One large railroad has purchased up to a six months' supply of its requirements of tin, copper ferrules, sheet copper, bar copper, copper tubing, solder, pig lead, brass fittings, copper line wire, magnet wire, weather proof wire, bond wire, copper guy wire, insulated wire, underground cable, copper sleeves, babbitt bearings, motor brushes, cotton duck, twine, carpet, rubber hose, axle belting, bell cord and cotton waste.

Contracts and agreements under which coal is generally obtained augur against increases in coal prices to

railroads until the wage scales agreed upon last spring require further adjustment or unless further war developments cause the government to intervene in coal marketing. Fuel oil prices and the prices of refined oils do not appear to have been disturbed as yet and it is believed that the seasonal decline in motoring should permit a decline in gasoline prices while increases in fuel oil prices can readily be avoided by removing restrictions on crude production.

Tie prices are also unchanged as yet but increased prices are being paid by railroads for many items of lumber and timber. These increases have resulted more largely from the increased consumption of lumber and timber this year than from war scares and further increases may occur after October when the Wage and Hour law prescribes increases in minimum wages of labor from 25 cents to 30 cents per hour and a change in the labor week to 42 hours. The Labor Department's index of wholesale commodity prices since September 1 has shown a larger rise than in any corresponding period since 1932.

While prices of materials have shown a net rise in the aggregate, the railroads do not see a run-away market and have been conferring with each other and with manufacturers to prevent a repetition of the experience of 1936 and 1937 when uncontrolled buying was followed by a collapse. Dealers are being warned against taking undue advantage of the present activity in business to mark up prices and buyers are particularly guarding against recognizing increases in prices on railroad materials which were manufactured prior to the increases in the prices of the raw materials from which they were made. It is also known that increased mill activity does not extend to all lines of steel manufacture and some orders for rail and other materials are still being issued by railroads more largely to keep the mills going than to meet immediate requirements or as a protection against future changes in prices.

The continued improvement in railway traffic and earnings and changes made or anticipated in material costs have stimulated programs for new equipment and materials. Despite assurances given the public that railroads in the aggregate still have adequate equipment for all immediate traffic needs the shoe has been pinching in places, especially in coal territory and thousands of shop men have been re-employed to repair locomotives and cars. Since September 1, manufacturers of equipment and equipment specialties have been flooded with requests for quotations and, as reported each week in the equipment columns of this paper, several roads have released substantial orders for equipment and rail.

Reports from 65 railroads for July, latest month for which details are available, indicate aggregate expenditures for material and fuel received of \$56,500,000 as compared with \$60,387,000 in June, 1939, and \$42,365,000 in July, 1938. The expenditures for material, exclusive of fuel, from manufacturers in July were \$38,050,000 as compared with \$43,025,000 in June, 1939, and \$24,740,000 in July, 1938. The value of orders placed on builders for locomotives and cars in July (exclusive of equipment to be built in railroad shops) were approximately \$3,703,000, as compared with \$6,012,000 in June, 1939, and \$14,435,000 in July, 1938. Total purchases of material and equipment, exclusive of fuel, were \$41,753,000 in July as compared with \$49,037,000 in June, 1939, and \$39,175,000 in July, 1938. This brings railway purchases of materials and equipment, exclusive of fuel, for the first seven months of 1939, to approximately \$322,943,000, as compared with \$194,684,000 in the first seven months of 1938, an increase of \$128,259,000 or 66 per cent, while aggregate pur-

chases, including fuel, for the first seven months totaled approximately \$463,286,000 as compared with \$329,096,000 in the first seven months of 1938, an increase of approximately \$134,190,000 or 41 per cent.

## British Roads Take On Their War Duties

THE Ministry of Transport took over the British railroads September 1, under the Emergency Powers Act, 1939, three days before the country declared war on Germany, as was reported in last week's *Railway Age*. Our British contemporary, the "Railway Gazette," commenting editorially on the move, is at pains to point out the differences between this procedure and that followed in the last World War. In 1914 the carriers were not taken over by the government until after war had been declared; this time they were commandeered several days before declaration of a state of war. In 1914 government control did not extend to certain smaller roads, the London "tubes" or urban and highway operations generally; this time the Ministry, through the Railway Executive Committee, (which includes the vice-chairman of the London Passenger Transport Board) controls all trunk lines, secondary lines, joint roads, London Transport (including "tubes," street railways and buses) and all ancillary undertakings of the railroads.

Even before war was declared, the British lines did a major job. From September 1 to 4, inclusive, they evacuated more than 3,000,000 so-called "priority" classes (children, parents, sick, etc.) from large centers of population into country areas by special train; they removed 600,000 children, teachers and parents from London alone in three days without incident.

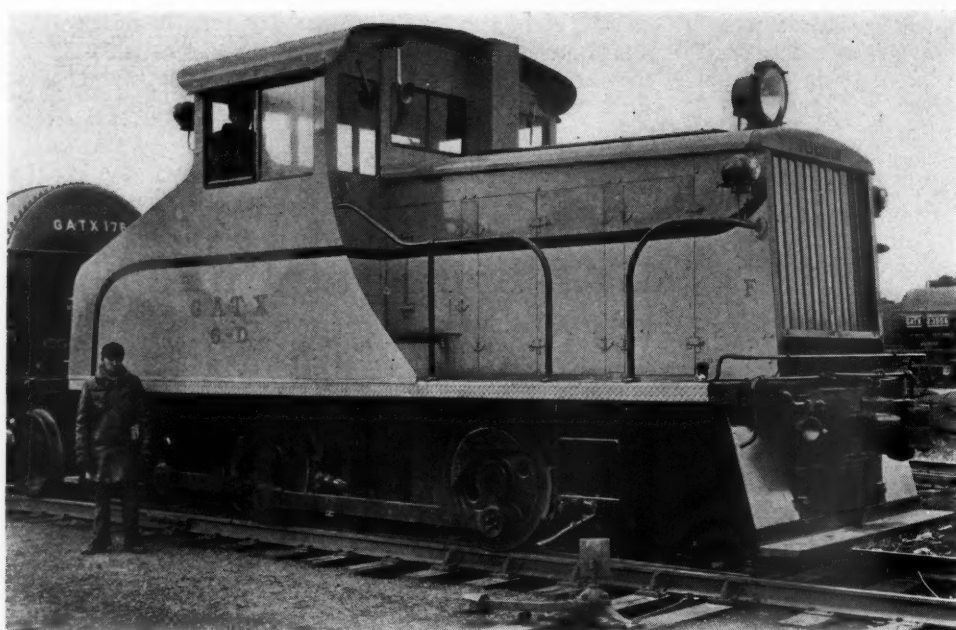
Up to September 6, chief changes in services due to war measures reported were the cancellation of high-speed expresses such as the "Coronation," and "Coronation Scot;" skeleton service for London suburban trains between 8 a. m. and 5:30 p. m., and reduction of rush-hour service by about one-third.

The Ministry of Transport has requisitioned all privately-owned freight cars, except tank cars and rolling stock suitable only for intra-plant or limited area operation, and placed them under control of the Railway Executive Committee along with the property of the carriers. The private cars may be used interchangeably with railroad-owned equipment by the road on whose tracks they are found, under directions from the committee. Cars on private sidings must be surrendered on demand to connecting railroads and access for their removal afforded. It is reported that car-hire fees will be charged for the use of such requisitioned equipment for shipments for which rates do not now include a car-rental charge.

The National Service Act passed by Parliament on September 3, which subjects all males from 18 to 41 to possible military service, provides that employers are required to re-instate employees called for service in an occupation and under conditions not less favorable than before they left for service. Violators are subject to fine of up to \$250 and payment of 12 weeks' remuneration to un-reinstated employees.

To speed up the armament program, the Amalgamated Engineering Union (having nearly 400,000 members) has agreed to ease up union restrictions to the extent of allowing the hiring of unskilled or outside labor to supplement present forces, when it can be shown that sufficient skilled men are not available.





A 44-Ton Plymouth Flexomotive in Service at the East Chicago Plant of the General American Transportation Corporation

## General American Replaces Steam with Diesel Switchers

Forty-four ton Plymouth Flexomotive units show good results in classifying trains of thirty or more cars

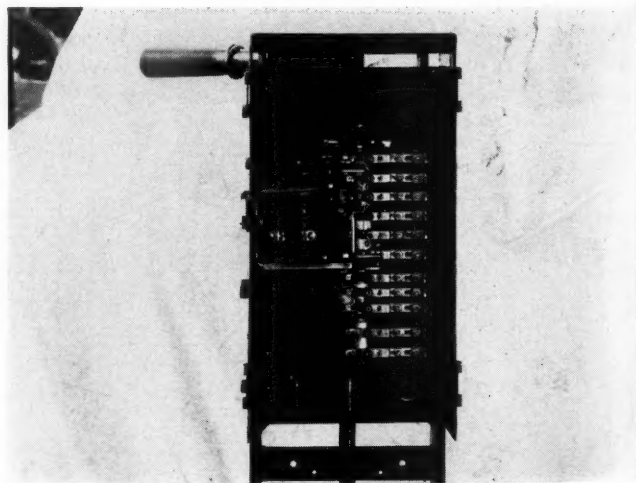
**E**ARLY this year, the General American Transportation Corporation placed in service at its East Chicago and Sharon, Pa., plants, two Model KC 44-ton Diesel-mechanical switchers, known as Flexomotives and made at the Plymouth Locomotive Works of the Fate-Root-Heath Company, Plymouth, Ohio. Since being installed, these locomotives are said to have operated with an availability of approximately 98 per cent and with an average fuel consumption of 2.7 gal. per hr. in steady classification service. They are expected to show an annual return of at least 50 per cent on the investment as compared with the cost of former steam operation.

The General American plant No. 2 at East Chicago is devoted to the construction and repair of tank cars. The major work at the Sharon plant is the construction and repair of tank and other special cars. The yards at the two plants consist of lead and multiple ladder tracks onto which long trains of empty cars and cars of material are placed, involving classification by kicking trains of 30 or more cars, work which was previously done by steam locomotives considerably larger than the Plymouth Flexomotive now used. The service is necessarily fast to keep abreast of production activities and the 44-ton Flexomotives have shown rapid acceleration and deceleration on this work, as well as ability to handle trains of as many as 66 large empty hoppers in one test.

### Main Objectives of the Flexomotive Design

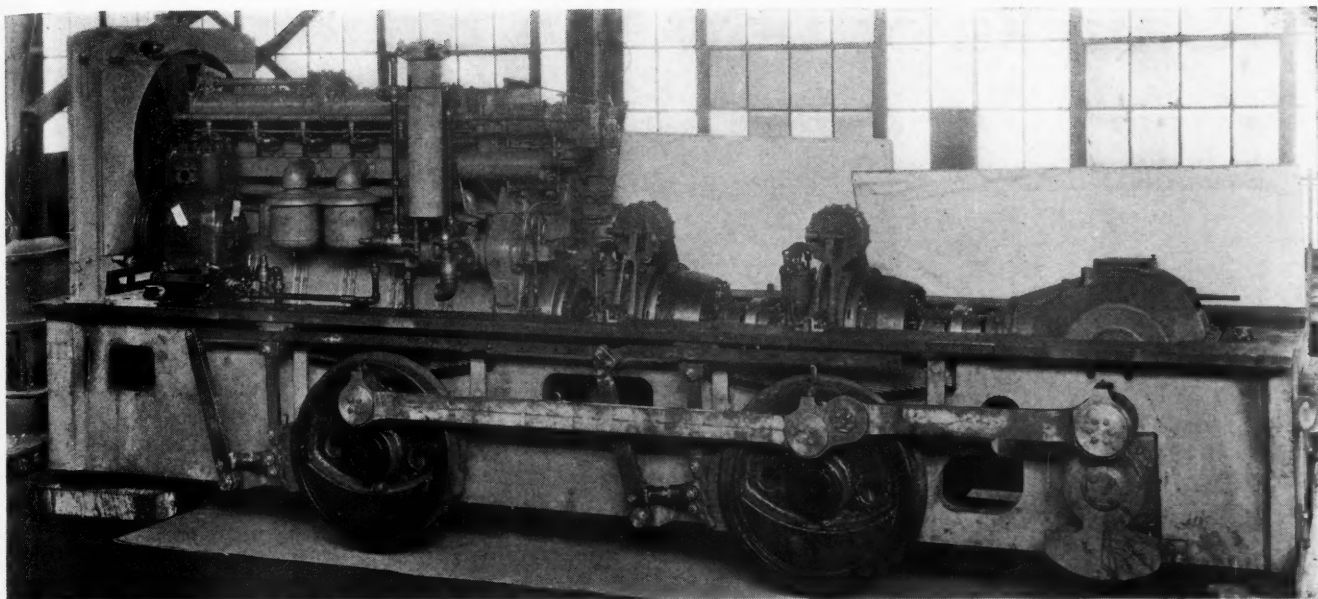
The Plymouth Flexomotive, made in 44-ton and 60-65-ton sizes, is designed primarily to provide a switching

locomotive at moderate first cost which combines the economy of the Diesel-engine with efficient mechanical transmission and at the same time assures highly flexible control in all speeds. Simple, rugged construction, with attendant low maintenance cost is indicated not only by the high percentage of availability attained with the two General American units, but by the excellent performance record of the first Flexomotive which was placed in service at the Chicago plant of the Inland Steel Company over two years ago.



Partial View of the Control Stand with the Cover Removed to Show the Absence of Complicated Parts





The Cab and Engine Housing Removed to Show Details of the Construction

Nine Plymouth locomotives of this type are now operating or are under construction for industries or railroads.

The 44-ton Flexomotive develops 27,000 lb. drawbar pull at 3 m.p.h., using a 34 to 1 gear ratio. The frame of the locomotive is of heavy slab steel construction welded and thoroughly braced. The locomotive is 24 ft. 11 in. long between coupler knuckles; 94½ in. wide; 12 ft. 8 in. high; and has an 8-ft. wheel base. The four driving wheels are 38-in. steel-tired wheels. All journal and transmission bearings are anti-friction. Westinghouse brake equipment is installed, also an air-operated bell and a Pneuphonic horn. All necessary engine and rod bearings are arranged for grease lubrication by means of pressure fittings.

The locomotive is equipped with a Cooper-Bessemer 6EN 8-in. by 10½-in. Diesel engine, developing 340 hp. at the maximum governed speed of 900 r.p.m. However, the nature of the Flexomotive drive permits the engine to operate at a speed generally from 600 to 800 r.p.m., outside of the idling speed, thus taking advantage of maximum torque and fuel economy and materially increasing the life of the engine by reducing both piston speed and the total number of revolutions necessary to perform a given amount of work as compared with other types of drive.

#### How the Mechanical Drive Operates

The Plymouth Flexomotive drive consists of two compound epicyclic gear units from which four speeds forward and four in reverse are obtained by fingertip remote control. Various speed ranges are furnished to suit service requirements. Each unit, as shown in the view with the cab removed, has an internal and external speedlock, each with air-actuated application and release. The internal locks or cones are timed in the control circuit to be engaged an instant before the load comes on, the load being picked up by the massive outside speed locks. After 8,000 hours of continuous service in the original Flexomotive, the drive was disassembled and gears and speed-lock lining inspected, the gears and lining showing no evidence of wear. It is said that the entire speed-lock assembly of the locomotive can be removed, relined and replaced in eight hours' time and at

a cost of less than \$100. The speed units, although a relatively new development, have demonstrated exceptional reliability and are covered by a liberal service guarantee by the locomotive builder.

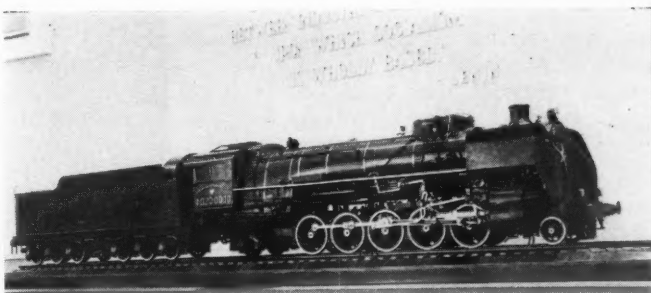
The final drive is through a spiral bevel pinion and gear and single- or double-reduction herringbone gear to the jack shaft which has counter-balanced cranks mounted at each end driving the side rods. All gears of the speed units and the final drive are of alloy steel, precision ground, and operate in oil-tight cases tested at 50 lb. air pressure.

#### Modern Lines and Color Scheme

One of the illustrations shows the Flexomotive in operation at the General American plant at East Chicago. Modern lines and a harmonious color scheme of yellow, gray and black has been used to make a clean and attractive looking unit. The cab construction assures maximum visibility for operation by one man. The engine controls are conveniently located for operation of the locomotive in either direction on the track. The simple type of control stand used is illustrated in another view.

A 32-volt fool-proof interlocked control circuit operates through electro-pneumatic valves to control the air application and release of the speed locks. There are no contactors or other intricate electrical control apparatus.

\* \* \*



This 8-Ft. Model of a 2-10-2 Type Freight Locomotive Recently Placed in Service by the People's Commissariat for Transport, U. S. S. R. Is Being Displayed in the Soviet Building at the New York World's Fair. It Is on a Scale of 1 to 10

# Causes of Low Tie Renewals



Surfacing Track on the New Haven

An analysis of the reasons why the tie inventory of the New Haven is high and the renewal rate low

By Charles E. Smith

Vice-President, New Haven Railroad

**I**T was in Hartford, Conn., that Mark Twain was reported to have told newspaper men who advised him of rumors concerning his death that these reports were very much exaggerated. Now comes the New York, New Haven & Hartford to state that the reports of under-maintenance, particularly as to deferred tie renewals, are much exaggerated, although, without a doubt, there is some deferred tie maintenance on some roads.

Many estimates of deferred tie installations have been based on comparisons of tie renewals during the years of the depression with tie renewals for chosen periods prior thereto. Such comparisons are highly misleading unless they take into account the history of tie treatment on the railroads. Although a number of railroads had been using treated ties for some years before the World War, a very large increase in the number of treating plants and in the number of ties treated took place after the war, many plants having been built in the years immediately following this conflict.

If the railroads had foreseen at that time the long-continued depression, extending from 1930 to 1939, and perhaps beyond, they could not have planned better for minimum tie requirements during the depression period than to have started their full creosoting programs in the early twenties. Taking a theoretical case of a railroad with all untreated ties in its tracks in 1921, ties having a maximum life of eight years, and assuming that all renewals after 1921 had been made with creosoted ties, the last untreated tie would have come out in 1929, but at that time the first treated tie would have been only eight years old.

Therefore, there would have been no tie renewals whatever from 1929 until the first creosoted ties installed in 1921 came up for renewal, possibly in 1941 and later years.

That perfect theoretical condition does not apply on any railroad, but to the extent to which treated ties were installed in place of untreated ties in the twenties, tie renewals were reduced to the minimum in the second

cycle during the thirties. That is just what happened on many railroads, including the New Haven.

## Treated Ties on the New Haven

Although the New Haven had installed some creosoted ties prior to 1921 in some of its heaviest-traffic main lines, the creosoting plant on its line was not built until 1921, following which the number of treated ties used increased rapidly and untreated ties decreased until 1928, following which practically all tie renewals have been made with treated ties and practically no untreated ties have been installed.

Treated ties installed during the 10-year period from 1911 to 1920 inclusive, prior to the building of the creosoting plant at New Haven, averaged only 57,086 per year. During the next four years the installation of treated ties was increased to more than one million ties per year. The installation of treated and untreated ties since 1911 have been as shown in the accompanying table. The only replacements of treated ties have been

Tie Renewals on the New Haven Since 1911

	Treated Ties Installed	Untreated Ties Installed
1911-1920 .....	57,086 per year	1,509,988 per year
1921 .....	151,251	1,759,374
1922 .....	307,577	1,561,341
1923 .....	486,331	845,669
1924 .....	894,614	677,311
1925 .....	1,094,273	643,731
1926-1930 .....	1,115,618 per year	221,177 per year
1931 .....	819,894	753
1932 .....	571,792	1,259
1933 .....	339,430	21
1934-1938 .....	319,541 per year	0

of part of those installed prior to 1921 on the New York division main line and some badly checked beech, birch and maple ties treated in the early years of the creosoting plant, in the early twenties. The installation of treated ties in large numbers was started in 1923 and continued



through 1924 and 1925. As the ties installed in those years are only 13 to 15 years old, renewals will be small in number for several years.

Tie renewals, amounting to 283,759 in 1938, amounted to an average of 66.7 per mile of track (2,733 miles of main tracks and 1,524 miles of other tracks) which would indicate an average life of 45 years. It is recognized that these figures are below normal, not because of deferred maintenance, but because the New Haven is now going through the second cycle which will continue until the creosoted ties first installed require renewal on an annually recurring basis. When that time is reached several years hence, it is expected that tie renewals may be as high as 125 per mile per year, which would amount to 532,000 ties per year, based on the present mileage of track maintained.

### Other Conditions Affecting Tie Renewals

In addition to the effect of the treating program there are several other reasons why railway requirements for new ties are below the number that might be considered normal otherwise and why comparisons with renewals of preceding years may be misleading. Among them are the following:

Practically every railroad is decreasing the mileage of tracks maintained, by the abandonment of unprofitable branch lines and other unnecessary tracks. From a maximum of 5,045 miles of tracks maintained by the New Haven in 1920, the mileage has been reduced to 4,257 in 1938 and there may be further reductions;

The use of good usable ties released from abandoned trackage; Improvements in track construction and maintenance during the twenties, principally better drainage, more and better ballast, more and larger tie plates, heavier rail and improved track appliances;

A lower level of traffic handled.

The tie inventory of the New Haven is subject to fluctuations somewhat similar to the inventories of tie producers who make a business of selling ties to the railways, but the New Haven is in a somewhat different position here because it has developed the practice of having practically all of its ties cut by local residents along its own lines. It must estimate how many ties will be needed, more than two years before the ties are installed, this being necessary by reason of the time consumed in placing orders, cutting the trees, making the ties, the 9 to 12-month seasoning period (only oak ties are used), and the time consumed in and seasonal influences affecting, creosoting, distributing and installing the ties. The New Haven now finds itself with a moderate surplus on its hands. That is not the result of fluctuations in its tie requirements, which have been fairly regular for the last five years, but rather to lack of appreciation of the effect on tie renewals in recent years of the late start of its tie treating program in the early twenties.

On January 1, 1939, the New Haven had on hand 384,324 treated ties, and 318,828 untreated ties, the latter being in its seasoning yard, all of which were creosoted early in 1939. This total of 703,152 ties compares with an average of 319,541 new ties installed during the last five years. It represents a more than two years' supply at the present rate of installation. The surplus is really more abundant than indicated by the foregoing figures, however, because of several hundred thousand good usable creosoted ties which are being released from abandoned tracks for use in the maintenance of other tracks.

For the reasons set forth, the New Haven bought no ties during 1938 and will buy none during 1939. Its surplus of new ties is definitely not the result of under-

maintenance, inasmuch as the tie condition on this road is normal. It would be wasteful to use these ties until the ties now in the track require renewal. No doubt the facts are similar in kind, differing only in degree, on other railroads.

### What Producers Should Do

Many producers who try to sell ties to the New Haven have told about the great magnitude of the tie shortages on the roads as a whole. Although they have been cautioned against producing too many ties in anticipation of a sudden increase in demands, they have not been very willing to admit that the comprehensive program of treated-tie installations in the twenties would decrease and has decreased the necessity for large tie installations during the thirties. Lack of appreciation of this feature has led some producers to over-produce and hold ties awaiting orders that the railroads did not need to place.

There seems to be no alternative for those producers who have abnormal stocks of ties on hand other than to stop producing and to spend their money for treating them when their seasoning period is over, or they will suffer a tremendous loss if they delay treatment until decay sets in. That is exactly what the New Haven had to do. The practice of tie producers of accumulating ties at favorable prices when railroads are out of the market, is distinctly beneficial to their customers in making ties available when required, provided the ties are treated at the proper time to avoid deterioration, and the supply is held within such limits that the carrying charges will not exceed the benefit obtained by reason of the favorable prices.

Fluctuations in the earnings of the railroads, while an important factor for short periods, does not seem to have had as much to do with fluctuations in their cross-tie purchases over longer periods as their background of treated and untreated tie installations. The time required for the production, the seasoning, the treatment and the distribution of the ties tends to iron out fluctuations in installations, but requirements must be forecast intelligently if improvident inventories are to be avoided.

The long-extended reduction in tie demand is due more to the present effects of prior installations of creosoted ties than to the effects of insufficient revenues and deferred tie renewals, although, no doubt, the latter is an important factor on many railroads.

The problems of the tie producers are equally the problems of the railroads. It is just as important for the railroads as it is for the tie producers to have, as far in advance as possible, an estimate of the tie renewals as nearly accurate as it is possible to get. In this connection, it might be appropriate for someone to start a movement for annual or even more frequent meetings of the producers and railroad tie purchasers in certain regions, to program requirements even on an approximate basis, somewhat similar to the way in which the car supply is programmed at quarterly meetings of the Shippers Advisory boards.

The problem is an important one and in my opinion the *Railway Age* cannot give too much time or space to it.

BUS LINES IN MANCHURIA are required to pay a route-mileage fee for highway construction and maintenance, according to a recent agreement between the Manchurian government and the Japanese-owned Manchuria Railway. The latter, which enjoys at present a complete monopoly of all common carrier services by highway in Manchuria, must now pay annually 30 yen (\$5.40) for each kilometer (.62 mi.) of highway over which it operates bus services.



# Evolution from Steam to

**T**HE Pennsylvania's New York-Philadelphia-Washington-Harrisburg electrification represents a complete changeover from steam to electric traction of very high-density traffic, both through freight and local and through passenger. It has presented an opportunity to bring the electric operation of a railroad of this character to the same degree of perfection as previously existed in the steam operation which it replaced.

The evolution may be considered to have started in 1914, with the electrification of the suburban line from Philadelphia, Pa., to Paoli. It was continued with the electrification of the other suburban lines in the Phila-

delphia district, followed by the electrification of the line from New York to Washington, D. C., and culminated with the recently completed electrification of the lines to Harrisburg, Pa. It can readily be understood that where an endeavor is being made to treat electrification as a railroad tool, two general characteristics are essential:

(1) Equipment of rugged design, fool-proof construction and easy maintenance, and

(2) An organization that is willing to take electric operation as a tool and use it to its maximum advantage to railroad operation, with a complete understanding of its dissimilarity to the steam service which it replaces.

As the electrification program was worked out, covering a period of 25 years, progressive study was made for the purpose of improving both the program and the equipment.

**Passenger Train Passing the Hackensack Substation  
at the West Portal of the Hudson River Tunnel**



# to Electric Traction

A presentation of the changes made and the steps taken by the Pennsylvania to improve electric operation

In so far as rolling stock was concerned, this began with multiple-unit cars and included various types of experimental locomotives. This development reached an important phase in 1933, with the design, construction and placing in service of 64 type-P5A locomotives. These units have a 2-C-2 wheel arrangement and have a continuous rating of 3,750 hp. With these locomotives in regular service and making high monthly mileages under actual road conditions, operating experience began to accumulate. Based on this experience, a study of locomotive design was made, with the result that type P5A locomotives were improved and several experimental locomotives built. Competitive selection from the experimental locomotives resulted in the choice of the present GG-1 passenger locomotive, which is now used in large numbers in both passenger and freight service on this railroad. This locomotive has a 2-C+C-2 wheel arrangement and a continuous rating of 4,620 hp. The continuous rating is nominal, since the output may for limited periods of time reach values as high as 8,500 hp.

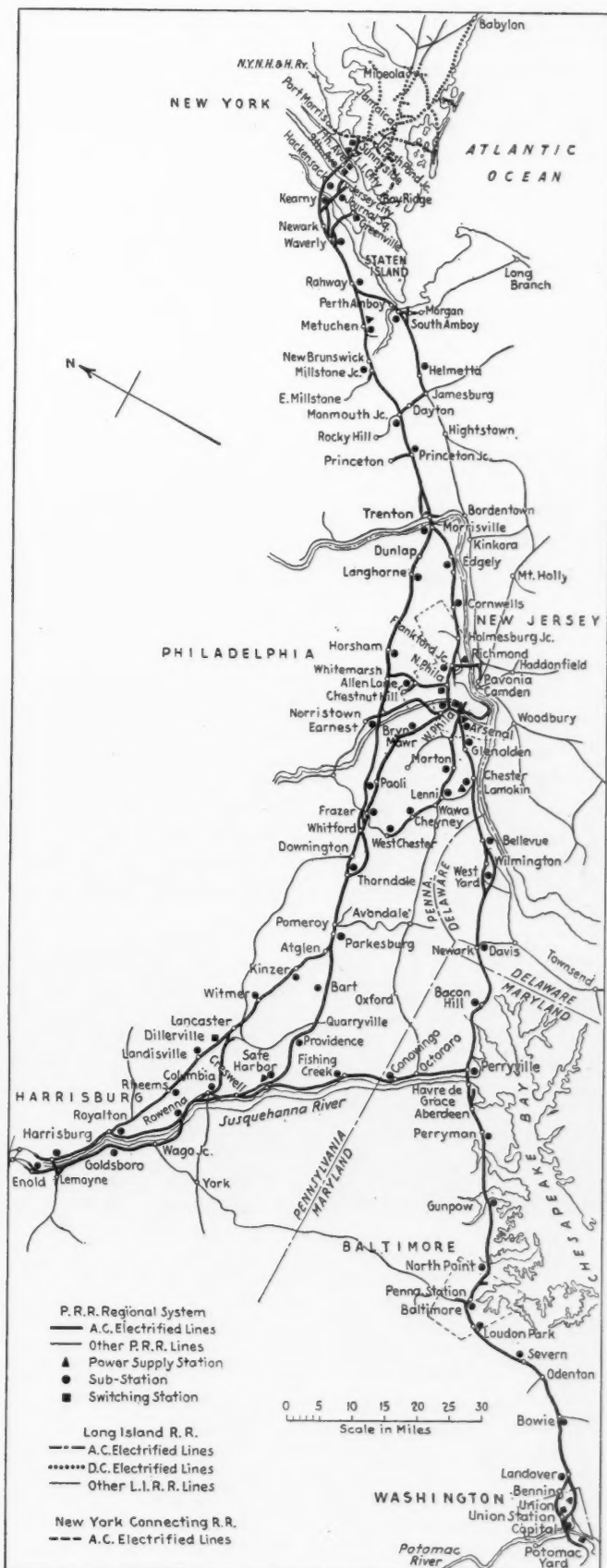
In the course of developing suitable locomotives, one of the P5A type was fitted with motors on the guiding trucks, in addition to those on the main driving axles. While this design has the advantage of utilizing the entire weight of the locomotive for producing tractive effort, it has not been duplicated, as other types of locomotives have proved more flexible in the service. Another locomotive, designated class DD2, was built preliminary to the electrification of the line to Harrisburg. It has a continuous rating of 5,000 hp. and has a 2-B+B-2 wheel arrangement. It has shown highly satisfactory performance but its cost proved to be equal to that of the GG-1 and no other was built, since its adoption would introduce motors and other parts unlike those used on the GG-1. Tests showed that GG-1 locomotives geared for 90 m. p. h., while designed for high-speed passenger service, also are a most satisfactory locomotive for heavy freight service.

Motive power equipment for main-line service now consists essentially of 91 class P5A and 89 class GG-1 locomotives. All of the GG-1 locomotives have oil-fired boilers for passenger train heating and 37 class P5A locomotives also have boilers. Sixty-three of the class P5A locomotives have been changed from 90 m. p. h.-gearing to 70-m. p. h.-gearing and are used for freight service only. The remainder of the P5A locomotives are geared for 90 m. p. h. They are assigned to freight service but may be transferred to passenger service for holiday and other peak demands. Freight traffic falls off on holidays when there is a peak passenger demand.

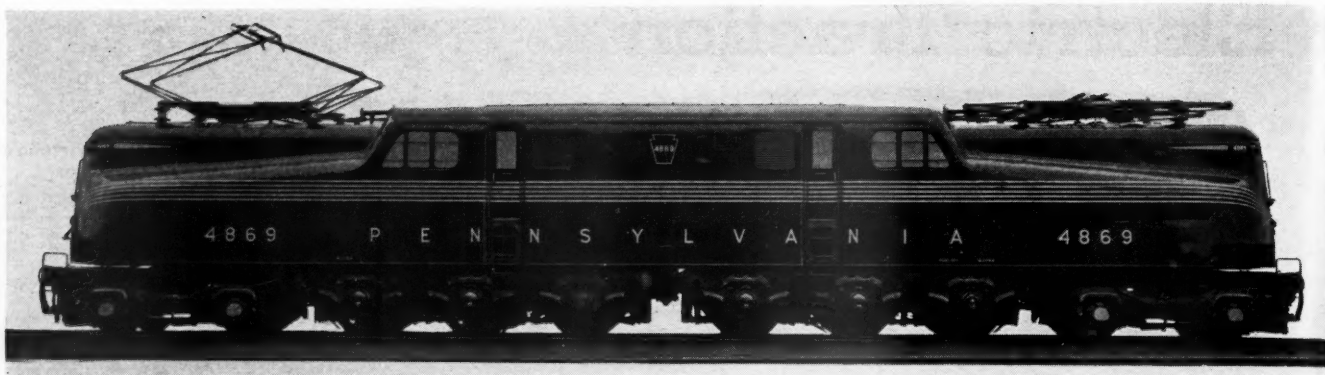
The class GG-1 locomotives are assigned to passenger service, but some of them are used in freight service when passenger demand permits.

During the early stages of electric operation, operating

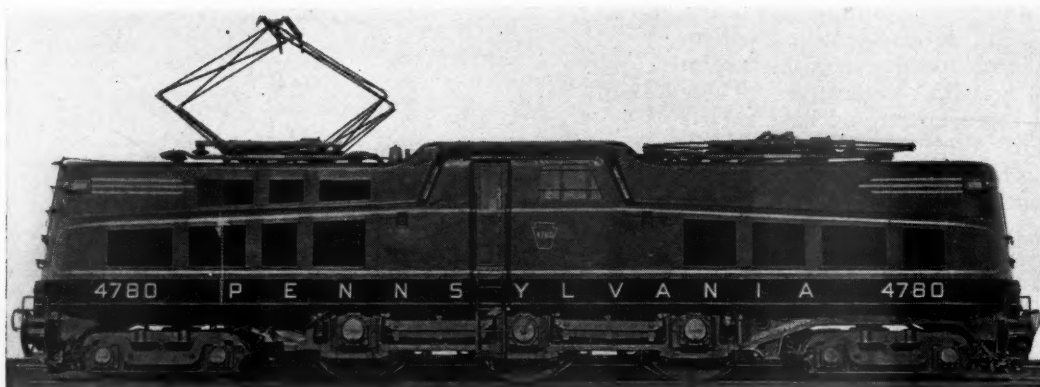
Map of the Pennsylvania's Electrified Territory



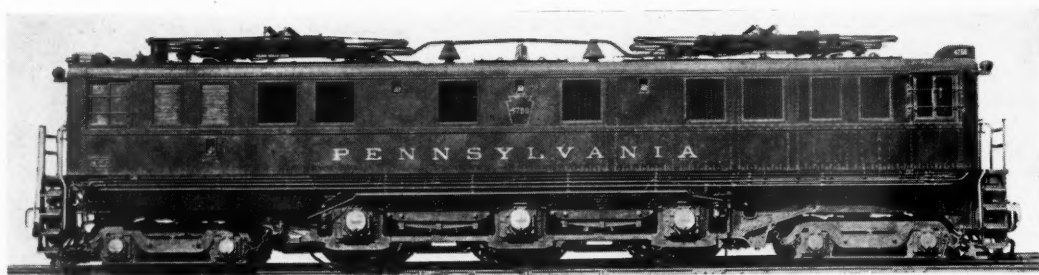




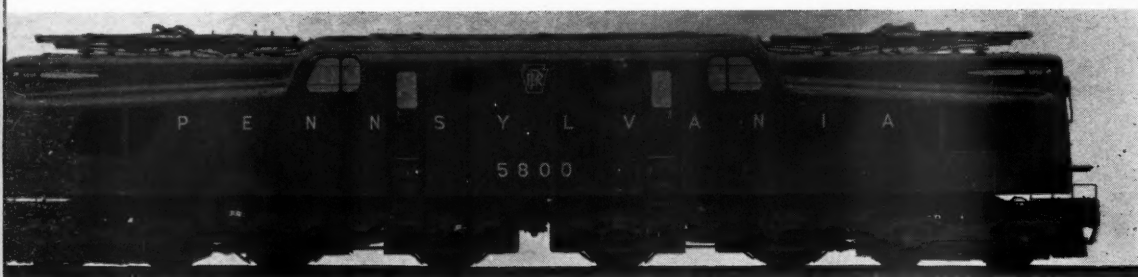
The Type GG-1  
Electric Loco-  
motive



Type P5A Loco-  
motive with  
Streamlined Cab



The Type P5A  
Locomotive with  
Box Cab



Experimental Type  
DD-2 Locomotive

experience and developments of design were having their effect on substations, the overhead trolley system and transmission circuits, and when the final step of electrification between Harrisburg and eastern terminals was reached, the design of these portions of the electrification, as well as the methods of construction, showed many improvements over those which were used in the initial stages. One of these improvements was the development and use of riveted clips and other hardware for overhead catenary construction. Another consisted of improved transmission circuit design and construction, which led to a reduction of the number of transmission circuits required on the Harrisburg electrification, and

to the elimination of oil-circuit breakers in the transmission circuits, except at sectionalizing points between power supply points; the oil-circuit breakers were replaced by air-break disconnecting switches. Simplified and improved substation operation was attained by the use of supervisory control for the substation circuits. It was also found possible to eliminate underground construction for the communication circuits and to replace them with aerial cables along the right-of-way. Improvements in track bonding simplified the application and reduced the cost of construction.

Increased speed and rupturing capacity of substation circuit breakers have materially reduced the possibility

of damage to catenary system as a result of short circuits.

Early in the program the indoor substations were replaced by those of the outdoor type and improvements in the design of these stations proceeded concurrently with the other developments mentioned. Also early in the program a decision was reached to eliminate the use of oil switches on rolling stock. This in turn required the development of protective devices on the locomotives, the reliance for opening of the circuits in emergency being placed on the successful functioning of the substation breakers. The steps described in the foregoing may be considered as necessary development of design and construction to produce satisfactory power supply, installation and motive power. They represent one step in the evolution from steam to electric operation.

In addition to this it was necessary to learn how best to adapt the inherent qualities of electric motive power to the needs of very heavy-density freight and passenger traffic.

### Basic Differences

Steam and electric locomotives have certain fundamental differences which require that they be used in different ways. At low speeds within the limits of adhesion, the horsepower output of a steam locomotive is limited by the power which can be developed in the cylinders at that speed. At higher speeds its output is limited by boiler capacity. At very high speeds the ability to pass steam, to and from the cylinders, is the limiting factor. The steam locomotive can be stalled on a grade without injury and it can be used to operate a heavy train at low speeds for any desired period of time. An electric locomotive is limited at all speeds by temperature rise in the traction motors. Adhesion and commutation under heavy loads also limit at low speeds. Heating, however, requires time and the electric locomotive may, therefore, use power from the overhead system for a short period in amounts well in excess of its continuous rating. Also at high speeds the modern series a. c. locomotive is able to develop relatively high horsepower outputs, as compared with a steam locomotive of similar rating.

### Operating Methods

As electric operation was initiated to take the place of steam, no immediate changes of schedule or service were made, and studies were instigated for the purpose of adjusting electric operation and the schedules to each other. This policy has continued during the initiation of additional steps of electric operation and is still continuing. Its objective is to attain maximum utility of electric operation as a means of moving railroad traffic.

To utilize to the best advantage the inherent characteristics of electric motive power, it has been necessary to set up appropriate forms of procedure. For example, in freight operation slow movements at high tractive efforts must be of short duration. Short, heavy up-grades, following down-grades where motors become cool, may be negotiated by utilizing the thermal capacity of the motor to handle overload for a short time. The inertia of the train is also used, the train being required to reach the foot of a grade at a specified speed, slowing down to the top of the grade. This method of operation permits the locomotive to haul a higher tonnage over the division than would be possible if speed were maintained on the grade. On long grades, a maximum speed limit may be necessary, since train resistance is reduced by lower speeds

and motor heating can thereby be kept within permissible limits. Where yard starting conditions or short ruling grades would limit the tonnage, helpers are required to permit loading locomotives economically throughout the run.

In passenger operation, schedules are reduced and train weights increased by the use of powerful locomotives with high horsepower at high speeds, and by the high acceleration rates made possible by the fact that the normal locomotive rating may be exceeded for short periods. During acceleration motor temperatures rise rapidly, but on reaching running speed power requirements fall off, so that safe temperatures are not exceeded. Motor temperature is reduced by the blowers while operating at reduced loading produced by deceleration, down-grade operation or other similar conditions in preparation for the next acceleration.

The tonnage which any type of electric locomotive can handle is determined by the heating and cooling characteristics of the locomotive, by the profile and operating restrictions of the line and by the train resistance. In passenger service the rating of electric locomotives is determined by means of profile-thermal-time studies of the motor temperatures with various weight trains, made in the engineering offices and checked in the field with recording instruments. Rating of freight locomotives is similarly determined by office studies and field checks. An essential difference is that the momentum method of operation is used in freight service, whereby trains moving up-grade are permitted to lose speed and maintain tractive effort within the heating limits of the motors, at the same time reaching the top of the grade at sufficient speed to avoid stalling.

### Adjusted Tonnage

The permissible loading of locomotives is based on a theoretical tonnage known as "adjusted tonnage" rather than on the basis of actual tonnage. This is due to the fact that lightly loaded cars pull harder per ton than heavily loaded cars. Thus a shorter train of heavy cars may require the same effort by the locomotive as a longer train of light cars, but the actual weight of the longer train may be less than that of the shorter one. For example, on one route it was found that 105 40-ton cars, weighing 4,200 tons and 63 80-ton cars, weighing 5,040 tons, produced the same temperature effects on the locomotive. Thus  $4,200 + 105 \times = 5,040 + 63 \times$ , from which the adjustment factor ( $\times$ ) = 20. The adjusted tonnage in each case would be 6,300 tons. Thus in making up a train, the factor of 20 is added to the actual weights in tons of each car to give the adjusted tonnage of a train.

Calculations show that the theoretical adjustment factor varies slightly among different divisions. The factor of 20 is to a small extent a compromise, but it assures that no locomotive will be overheated, as long as operating rules are adhered to. In some cases the factor discriminates very slightly against a train composed entirely of light cars on some divisions, but since in the direction in which such trains move, there is always an excess of motive power available, no modification of the factor is necessary.

In initial calculations, train resistance was based on the Davis formula. Tests and experience have shown that for operation with electric locomotives on the Pennsylvania railroad the Davis formula indicates about 25 per cent greater resistance than is actually obtained in practice.

Once the train resistance formula has been determined  
(Continued on page 446)





This Photograph of the Point of Derailment Shows How a Tie Plate Was Moved Inward Approximately  $4\frac{1}{2}$  In. and Fully Spiked, Holding the End of the Receiving Rail in an Ideal Position to Cause Derailment. Note Marks of the Original Tie Plate Seat

## What Wrecked the Streamliner City of San Francisco?

Facts revealed correct much misunderstanding and point unmistakably to the deliberate misplacement of a track rail

**W**HAT caused the disastrous wreck of the streamliner, "City of San Francisco," traveling over trackage of the Southern Pacific in northern Nevada on the evening of August 12? This is a question which remains unanswered officially as yet, until the Interstate Commerce Commission releases the report of its Bureau of Safety. However, the railroad's Board of Inquiry brought out many facts which establish conclusively that the derailment of the streamliner resulted from a deliberate, malicious act of sabotage. The Board of Inquiry, which met on August 19 and continued in session for three days, was made up of J. C. Goodfellow, superintendent of the road's Salt Lake division, on which the accident occurred; Otis Weeks, division engineer of that division; J. E. Stone, master mechanic; David Dotta, mayor of Elko, Nev.; and Ira Pearce, a merchant of Elko. Five representatives of the Interstate Commerce Commission attended the inquiry and interrogated witnesses at great length, and agents of the Federal Bureau of Investigation sat in at all sessions. Others in attendance throughout the hearing were C. B. Sexton, chairman of the Nevada State Public Service Commission, and George Gottschalk, inspector, Nevada state police.

Here are the facts that have been disclosed. The derailed City of San Francisco consisted of three Diesel-

electric power units, followed in order by a dormitory-baggage car, a chair car, a combination diner-kitchen car, a diner, a dormitory-club car, a compartment-drawing room car, a sleeper with sections, another sleeper-compartment-drawing room car, a sleeper with sections, a sleeper-bedroom car, a sleeper with sections, a sleeper-roomette car, a sleeper-bedroom car, and an observation-lounge car. This train, at the time of the derailment, was moving westward on Southern Pacific track in paired track territory with the Western Pacific between Weso, Nev., and Alazon, a distance of 178 miles, in which territory all westbound trains of both roads use the Southern Pacific track and all eastbound trains of both roads operate over the Western Pacific track.

The derailment occurred at a point 3 miles west of Gerald, Nev., and 1.6 miles east of Harney, Nev., on a 3-deg. curve to the right in the direction of movement, and 169.5 ft. east of the road's fifth crossing of the Humboldt river, involving a single-track, through riveted Warren truss span, 120 ft. long and approximately 34 ft. in height from stream bed to base of rail. This bridge, equipped with both rail-type and timber guard rails, was approached by earth embankments approximately 30 ft. high, and rested on mass concrete abutments.

In the derailment, the three power units of the train and the two following cars passed over the bridge, on the ties, without becoming uncoupled, the first power unit coming to rest with its head end 865 ft. west of the point

\* Information relative to the character of the accident, with the basic facts concerning the extent of the damage and the number of passengers and employees injured and killed, appeared in the *Railway Age* for August 19, page 289, and September 2, page 350.

of derailment, upright in position, and approximately 11 in. to the left of the center line of the track. The second power unit also remained upright, approximately 12 in. to the left of the center line of the track, while the third power unit and the two following cars which crossed the bridge came to rest on the south side of the embankment, the power unit in a leaning position, and the other two cars on their sides.

The next two cars in the train, the combination diner-kitchen car and a diner, obviously engaged the truss members of the bridge in crossing it, collapsing the structure, and resulting in these two cars, together with the three following cars, being precipitated into the river bed. The next three cars of the train, all of which were derailed, stopped short of the bridge opening, and came to rest in leaning positions down the south face of the embankment. The next car, a sleeper, was derailed but stood upright on the track, while the last three cars in the train were not derailed.

### Stout Track Construction

The track at the point of derailment was on a three-degree curve to the right, in the direction of traffic, with four inches of superelevation, and the curve had an approach spiral 330 ft. long. The track was protected by automatic electric block signals and, on the curve, there was an authorized speed limit of 60 miles an hour for the City of San Francisco, which was not exceeded by this train.

Structurally, the track, in every detail, complied with the highest standards of the road, consisting of 130-lb. P.S. section rail, rolled in 1930 and laid in May, 1931; 7-in. by 10-in. by 8-ft. and 7-in. by 9-in. by 8-ft. creosoted fir ties, in good condition—24 to the 39-ft. rail length; and Palisade crushed rock ballast, with full shoulders and a minimum of 12 in. beneath the ties. The rails were held together by means of 24-in., four-hole reinforced joint bars, with 1-in., high-carbon, heat-treated bolts, equipped with coil spring washers. The track was fully tieplated with intermediate and joint plates, both of single-shoulder design, the intermediate plates being 10½ in. long by 8¾ in. wide, and the joint plates 11 in. long by 8¾ in. wide. The only fundamental difference between the intermediate and joint plates is in the location of the spike holes, both providing for four rail-holding spikes for use with 130-lb. rail, but in the case of the joint plates, the holes being set back a sufficient distance to permit spiking directly against the unslotted joint bars. Both lines of rails were double-spiked throughout the curve, both inside and outside (four spikes per tie plate), with ⅝-in. standard track spikes, 6 in. long beneath the throat of the head, and both rails were held against longitudinal movement by means of 10 rail anti-creepers to the rail length.

At each joint the rails were bonded for the signal circuit by means of two No. 8 B. W. G. Ex B. B. double-

galvanized iron wires, each 52 in. long, looped at each end and housed behind the joint bars for protection. The bond wires were secured to the rails by means of channel pins driven into holes in the rail webs, the two holes in each rail being 1 in. center to center, and with the nearest hole in each case not more than 1½ in. from the ends of the joint bars. This arrangement spaced the holes for each bond wire approximately 28 in. apart.

The length and amount of play in the bond wires readily permitted the displacement of the rail without their being broken. As found following the accident, these wires were still attached securely to the leaving rail, although they lay loose, diagonally across the track, with their opposite ends free, having obviously been ripped from the receiving rail as it was thrust inward across the track by the impact of the derailed wheels of the train.

Such were the standards of track construction throughout the curve on which the derailment occurred. Furthermore, examination showed that the ties throughout the length of the curve were in a sound condition, and that the high rail had a full head section.

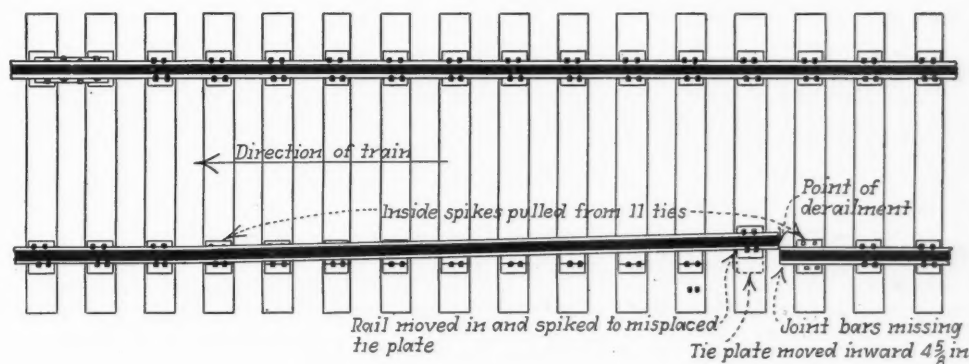
### What Caused the Derailment?

Early on the morning of August 13, following the accident which occurred at 9:33 p. m., Pacific time, the evening before, altered track conditions were found directly at the point of derailment, 169.5 ft. east of the east abutment of the river bridge, which caused the coroner investigating the accident to render a prompt verdict that, "to the best of our belief and judgment the wreck was caused by a misplaced rail, misplaced by person or persons unknown." This verdict has since been upheld by the railroad's Board of Inquiry. Here is what was found:

Directly at the point of derailment, on the south, or high side, of the curve, the tie plate on the first tie beneath the receiving end of the rail, which, according to standard construction should have been a joint plate, was missing, and in its place was an intermediate tie plate, fully spiked with four spikes, not in the true position of the original joint plate, but inward, toward the center of the track, approximately 4½ in. from the true position. The position of this plate relative to the alinement of the other plates was not the result of the tie moving laterally in the track under any form of direct or indirect impact of the derailment, because measurements showed that there was no lateral movement of this tie, or of any of the other ties for a rail length preceding and beyond the point of derailment. Furthermore, that the substituted intermediate plate was out of correct position was evidenced clearly by the marks of the original plate seat on the tie, and the old spike holes.

Of the four spikes holding the misplaced tie plate, the two outside spikes were found driven down to a

Sketch of the Altered Track at the Point of Derailment, Showing How the Receiving Rail Was Freed of Spikes on Its Inner Side and Moved Inward to a Derailing Position on a Shifted Fully-Spiked Tie Plate





point where they would have rested firmly on the outer flange of the receiving rail, shifted inward to a position on the tie plate, while the two inside spikes had been backed up approximately one-half their length and were tilted backward slightly, indicating that while they had been fully driven just prior to the accident, they had been partially backed out by lateral pressure on the rail at the time of the derailment. This entire situation is shown in one of the accompanying illustrations, which is a reproduction of one of the many photographs that were taken by newspaper men and others of the point of derailment on the morning following the accident.

Another observation made at the same time that the misaligned tie plate was found directly at the point of derailment, was that the joint bars that had held the rails together at this point had been removed, unquestionably by the backing off of the nuts of all four bolts, because no broken bolts were found. Still another observation was that all four rail spikes in the high side of the last tie supporting the leaving end of the rail at the point of derailment had been pulled, without disturbing the position of the rail or the tie plate, and that all of the inside spikes in the first ten ties supporting the adjacent receiving rail, had been removed. As a result of these conditions, which permitted the high side receiving rail to be pushed inward and turned over at the time of the derailment, there arose immediately the supposition that the receiving rail, after it had been freed by the removal of the joint bars and the inside spikes from 10 ties, had been barred or jacked inward to form an ideal derailling condition, and had been secured in this position on the misaligned, full-spiked tie plate on the first tie beneath its receiving end. This supposition, supported by other facts, including a wheel flange impact mark on the outer side of the end of the head of the receiving rail, indicating that the receiving rail had been in the position determined by the misaligned tie plate at the time of the accident, led to the prompt verdict of sabotage.

In view of all of these facts, the Board returned findings, in part, as follows:

"Board of Inquiry finds that the derailment of the streamliner City of San Francisco was solely and directly caused by person, or persons, unknown to this board, unlawfully and maliciously, and with intent of wrecking said train, separating the south line of rail at a rail joint by placing south rail with the receiving end toward the center of track, 4 $\frac{5}{8}$ -in. from its normal position. This formed a derailer which threw the first 14 cars of this 17-car train off the rail as they passed over the rail opening, which was constructed at night between train passages and in such a way that automatic block signals remained clear to the engineer of the approaching train. The severity of the result was greatly increased by the rail opening being placed on the outside of a 3-degree curve, 169 ft. east of Bridge No. 5, 120 ft. in length, over the Humboldt river, and 33 ft. above the river bed.

"No negligence or fault appears on the part of officers or employees of the Southern Pacific Company."

THE CHESAPEAKE & OHIO'S MINIATURE RAILWAY layout, originally displayed at the Century of Progress in Chicago in 1932, is scheduled for a "return engagement" in New York at Gimbel Brothers' department store until November 4. For five consecutive summer seasons the model has served as a Steel Pier attraction in Atlantic City, N. J., where, it is estimated, it has attracted more than 13,000,000 people. Occupying 1,548 sq. ft., the complete exhibit requires 400 man-hours for its assembly on location. When packed in 114 large cases for movement from city to city, its equipment occupies an entire 70 ft. express car especially assigned for this purpose.

## Evolution from Steam to Electric Traction

(Continued from page 443)

to suit electric operation, it is possible to pre-determine by calculation what permissible adjusted tonnage to put behind any type of electric locomotive over any profile. The effects of permissible rates of acceleration and speeds on grade, curves or level tangent track are translated into temperatures by the heating and cooling characteristic curves of the motors. No attempt is made to draw continuous temperature curves, but peaks are calculated to avoid temperatures high enough to damage insulation. The allowable temperature rise for very short periods is somewhat greater than that which could be permitted as a continuous condition. By taking advantage of this fact, a reduction in train weights may be avoided and no material damage done to the insulation, since deterioration is a product of time as well as of temperature.

### Operating Rules and Practice

The adjusted tonnages used are based on the assumption that trains will be kept moving over a division. If, for some reason, a train should be stopped on certain grades, an attempt to start without help is prohibited and definite minimum speeds are required at the foot of these grades.

For freight operation, the controllers of P5 locomotives with 90- and 70-mile gears are blocked on the 15th and 18th notch respectively, and the GG-1 controllers are blocked on the 17th notch. For either freight or passenger operation, current on the GG-1 locomotives must be limited to 2,800 amp. at starting, to 2,500 amp. up to the 17th notch, inclusive, and in passenger operation to 2,200 amp. from the 17th notch to the 22nd notch. In passenger service, trains up to a certain number of cars or tons (no adjustment factor is used) may be handled with no restrictions. Operating rules permit the handling of heavier passenger trains by limiting the maximum notch to which the master controller may be operated.

Further protection against overloading is supplied by overload relays. Slip relays protect against motor damage which might be caused by slipping wheels. If one pair of drivers should slip, so that their speeds exceed that of another pair, the engineman is given a buzzer and light indication. If the slip is not checked and rises above a certain value, the motor circuit on the wheels involved is opened automatically.

With these methods of operation the inherent qualities of electric locomotives are being developed and new possibilities realized. For example, the class GG-1 locomotives built for passenger service, have been found to be a very satisfactory freight locomotive for hauling heavy trains and for operation with a minimum of maintenance. The class P5 locomotives were also designed for passenger service, but can be used effectively with 90-mile gears for either freight or passenger service. The change from 90-mile to 70-mile gears serves to increase their tonnage ratings by as much as 40 per cent, depending upon the service in which they are placed and the profile over which they are used.

An example of what is being done by electric operation is given by the trains from Potomac Yard to Jersey City. With electric locomotives and trains as heavy or heavier than those handled by steam, the overall running time has been reduced from nine hours to six hours-thirty minutes for a fast train of perishable freight, with no

(Continued on page 449)

# Motor Transport Section

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Part of the Illinois Central's Truck Fleet Assembled at Carbondale

## Illinois Central Goes to Trucks

Complicated branch line problem solved by  
rail-highway co-ordination

**I**N southern Illinois, the Illinois Central operates a large network of branch lines radiating from DuQuoin and Carbondale, as shown on the map. Until recently this was almost entirely a coal-producing area, but the discovery of oil at many places and the establishment of oil fields and refineries has changed the railway operating needs and practices materially in the last few years. Not only has the flow of merchandise to local stations on these branches been materially increased, but, as is the case in all oil fields, the receivers of the freight are invariably in a tremendous hurry to have it delivered.

To provide for this need, and to compete for the business with service equal or superior to that offered by highway competitors, the Illinois Central, in conjunction with the Railway Express Agency, on June 27 this year, established a network of highway truck lines radiating from Carbondale to 66 local stations in the vicinity. The new co-ordinated system is effective on all main and branch lines in the area bounded by Centralia on the north, Cairo on the south, Eldorado on the east and East Saint Louis on the west.

### Fast Train Service

Carbondale has been selected as the distribution point for merchandise throughout the area and the various

truck routes fan out from this station in all directions. Shipments from the St. Louis metropolitan district, 96 miles from Carbondale, arrive in solid cars on regular freight trains shortly after midnight.

From the Chicago area, 307 miles from Carbondale, shipments are handled on M. S.-1, the fast, overnight merchandise train operated from Chicago to Memphis, as described in the *Railway Age* of November 27, 1937. This train, leaving Chicago at 7:45 p. m., averages 44 m. p. h. on its run from Chicago to Carbondale, arriving at the latter point at 2:50 a. m. Since the schedules of these trains are watched as closely as those of any passenger train, this means that early morning delivery is assured. On arrival at Carbondale, the merchandise from the Chicago and St. Louis cars is unloaded on the transfer platform and classified according to routes for loading into the waiting trucks.

### Early Delivery

The classification and transfer work is handled expeditiously, and, since the inception of the service, all merchandise has been transferred and the trucks on their way to the 66 local stations by 5:30 a. m., in every instance. Thus early first morning delivery from Chicago and St. Louis is assured to the entire group of local stations, with reduced time in transit amounting, on some





Branch Line Territory of Illinois Central in Southern Illinois Where Trucks Are in Operation

branches where daily train service was not maintained, to as much as 48 hr. After the morning deliveries have been made out of Carbondale, the trucks work their way back to Carbondale from the local stations in the afternoon, picking up freight for main-line movement. This merchandise is classified at Carbondale upon being unloaded from the inbound trucks, and makes the evening connections with fast freight trains out of Carbondale in all directions.

This particular fleet of trucks makes deliveries and picks up freight only at the local freight stations of the railroad. However, the arrangements which have been in effect for optional pick-ups and delivery service at local stations are still operative, affording door-to-door service as before to those shippers and receivers who desire it.

#### Advantages

Of course, the large savings in time in transit made possible by the flexibility of the rail-truck co-ordinated

operations and the resulting increase in the traffic handled are distinct advantages in making this a successful operation. Other factors, however, also enter into the situation. In oil field territory, the prompt delivery of carload freight as well as merchandise shipments is highly important. The use of trucks for the delivery of merchandise to the 66 local stations has relieved the local freight trains to the extent that they may now be used for carload traffic only. Not only has this reduced the number of stops made by these local trains, but it has reduced the time of such stops as are still made, since it is no longer necessary to spot at the freighthouses to unload merchandise.

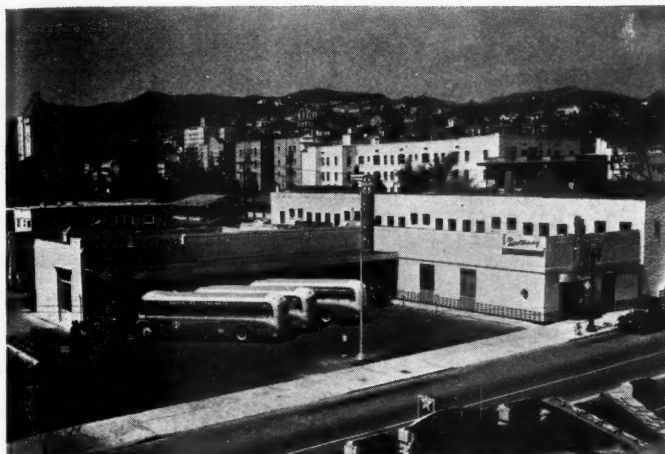
As a result, both carload and less-than-carload shipments are getting materially faster delivery in Southern Illinois than was the case prior to the inauguration of this rail-highway co-ordinated service.

## Improving California Service

**T**HE Santa Fe Trailways have embarked upon a comprehensive program of improving facilities and service in California. One phase has been the construction of many new bus stations at important points, one of the newest of such buildings having been opened in Hollywood. This station is of modernistic design, with red columns and beams and blue and ivory paneling. The ticket counter is trimmed in red and black and the floors are covered with colored tile in designs of grey and brown. Similar modernistic colors and fittings are used in the Fred Harvey restaurant and cocktail lounge included in the station building. Arrivals and departures of buses are announced through a complete public address system, the outlets of which are so placed that the announcements may be heard in all parts of the station, restaurant and lounge. The



Fast Overnight Coaches with Sleeping Accommodations for 25 Passengers Operate Between San Francisco and Los Angeles



Exterior and Interior Views of the Santa Fe's New Hollywood Bus Terminal

14 Santa Fe buses using this terminal daily are loaded and unloaded in a covered plaza.

Another departure is the inauguration of bus sleeping service between San Francisco and Los Angeles, by means of specially designed sleeper coaches, leaving each terminal daily at 8:15 p. m. and arriving at the opposite terminal at 7 a. m., with intermediate stops at Fresno, Bakersfield and Hollywood. This fast schedule means that the coaches must average more than 40 m.p.h. enroute.

These coaches accommodate 25 passengers in five sleeping compartments, each of which has one double and three single berths. Each compartment is equipped with a mirror and wash basin, and a separate heating and ventilating system easily adjusted by the passengers. The berths are separately curtained and each has a reading lamp. The berths are made up cross-wise, with an aisle on the right side of the coach. Separate dressing rooms and toilets for men and women are located at the rear of the coach, and two observation seats are provided in the driver's compartment for use by passengers. The berths cost \$1 single, and \$1.50 double in addition to the regular fare.

These coaches are rear-engine powered with Hall-Scott 175-h.p. engines, with controlled air gear shifts and Westinghouse air brakes. A driver and a porter accompany each coach.

## Gigantic Job Completed

**A** FIVE-YEAR rail-highway co-ordination job was completed recently when the Pacific Motor Trucking Company hauled its last truckload of cement to the Los Angeles metropolitan water district aqueduct. Since September, 1934, the Southern Pacific and its wholly-owned highway subsidiary have handled 2,847,660 barrels of bulk cement, or more than half a million tons, involving 1,500,000 truck-and-tractor-miles and 12,000,000 ton-miles.

During the peak period of this operation, the P. M. T. had to keep 13 separate structures supplied with cement and delivered to as many as 10 of these in one day. This required the operation of a highway fleet of 34 cement carrying units and the construction of cement silos at the railheads at Mecca, Calif., and Indio, and an unloading pit at Garnet. The day's record haulage was the equivalent of 26 car loads, or nearly 1,500 tons, and the operations had to be supervised carefully in view of the occasional irregularity of the movement, which fluctuated

from 2 carloads in one day to 24 carloads the following day.

During the five-year operations, two serious flood emergencies were faced, when cloudbursts washed out large portions of the main road used for trucking between Mecca and the aqueduct. In both cases, the schedules were quickly re-arranged and delays to the construction of the aqueduct were avoided.

Naturally, keen competition was encountered in bidding for this job, particularly from companies desiring to truck the cement through from the mills to the aqueduct. The existence of a highway subsidiary enabled the Southern Pacific to meet the requirements set forth in the tenders for bids, and thus insure a rail and truck haul on this huge volume of traffic.

## Evolution from Steam to Electric Traction

(Continued from page 446)

change in speed restrictions. This reduced running time, together with the high dependability of electric operation and improved connections from the South has permitted delivery of perishable freight from the State of Florida one day earlier than it was possible to do in the past. Similar improvements in running time have been made in the movement of freight trains to and from the West since the electrification between Harrisburg and New York was placed in service. One important factor responsible for reducing running time of trains hauled by electric locomotive is the elimination of stops between initial and final terminals for coal and water.

In passenger service the scheduled time of the fastest train between New York and Washington has been reduced from 4 hours 15 minutes to 3 hours 35 minutes. The schedules of other trains have been similarly improved.

It may be readily understood that the requirements of evolution have necessitated not only development of equipment and studies of operating characteristic to fit railroad requirements but have also required a cooperative effort of considerable magnitude between the engineers, the management and the operating officers to reach maximum efficiency of operation of the new tool. The result has been to produce a continuing improvement in the reliability of operation, reduction in both freight and passenger schedules without increase in maximum speeds, and general improvement of the service to the public in electrified territory.



# NEWS

## Chandler Law Case on B. & O.

Three judges hear testimony as  
case is opened at Balto—  
Many protestants

The first formal hearing on a railroad reorganization plan under the provisions of the recently-enacted Chandler Act began in Baltimore, Md., on September 18, when a special three-judge United States district court started taking testimony on the Baltimore & Ohio's \$12,000,000 voluntary interest reduction plan which has already received Interstate Commerce Commission approval and acquiescence by over 85 per cent of the bondholders. At the outset of the initial session the court, composed of United States circuit judges John J. Parker and E. A. Dobie and United States district judge W. Calvin Chesnut, it was announced by presiding Judge Parker that anyone who had any interest in the hearing would be heard regardless of whether or not he or she happened to be a lawyer. He made it plain that the law provides that a full hearing on the plan shall be given and that all parties who wish to oppose the plan in any way shall be given a chance to be heard.

After this announcement several attorneys representing relatively small bondholders told the court that their clients desired to oppose the plan. Judge Parker assured them that they would be given an opportunity later in the hearing to offer any evidence in opposition to the plan that they had prepared. At the same time he handed to the clerk of the court a large bundle of letters which, he said, had been received by the court from small bondholders who wanted to be recorded as opposing the B. & O. plan. One attorney served notice on the court that he would oppose the plan on the ground that the Chandler Act was unconstitutional in that it constituted "class legislation" because of its time limitation of one year.

Col. Henry W. Anderson, who has been serving as special counsel to the company, was on hand to direct the efforts to convince the court that the interest reduction plan should be approved. The first witness for the company was W. D. Owens, assistant comptroller, who told how the railroad had carried out the court's orders that all parties in the proceeding be notified. He went on to say that his office had mailed out 128,000 pieces of mail to bondholders notifying them of the pending proceeding.

The next witness was J. J. Ekin, vice-president and comptroller, who presented numerous formal exhibits such as the

charters and by-laws of the B. & O. and its constituent companies, mortgages, indentures, and other legal instruments which, he said, would form a vital part of the case. During his cross-examination, Mr. Ekin was asked by counsel for a small bondholder opposing the plan, whether or not the road had on hand enough cash to meet the interest on the bonds held by the 15 per cent of the bondholders who have thus far refused to assent to the plan. After considerable legal sparring, Judge Parker decided this was a legal question which the witness did not have to answer but rather one which would have to be argued by counsel before the court and, perhaps, decided on appeal. He did insist, however, that the witness should testify as to how much cash the company had on hand at the time that it refused to pay the interest on the coupons of certain bonds and how much was on hand at present. This, the witness could not do at the moment, but he promised to present it at a later date.

Questioned by Judge Chesnut, Mr. Ekin brought out the fact that the plan has been declared "operative" by the board of directors but that it has not yet become "effective." Explaining the difference between these two terms, Mr. Ekin told the court that the board of directors decided that they would declare the plan "operative" so that those who had signed assents to the plan and had deposited their bonds with the company could not later back out and refuse to go along with the plan. According to Mr. Ekin, the notice sent out by the company contained a proviso to this effect but stipulated that the plan could not be declared "effective" until 90 per cent of the affected bondholders had agreed to it.

Mr. Ekin was followed on the witness stand by George M. Shriver, senior vice-president, who discussed the details of the plan which were outlined in the *Railway Age* for September 10, 1938, page 390. Other witnesses scheduled to appear in support of the plan were Frederick S. Walker, vice president of the Northwestern Mutual Life Insurance Company; Daniel Willard, president of the B. & O.; and Bert Jewell, representing the Railway Labor Executives Association. Court attaches felt that not more than two or three days would be consumed in the initial hearing.

### Baggage Agents to Meet October 24-26

The American Association of General Baggage Agents will hold its annual meeting at the Adelphia hotel, Philadelphia, Pa., October 24 to 26, inclusive. It is to be noted that this is a change from the original scheduled date of October 17 to 19.

## Alabama Ups Truck Top-Weight 50 P.C.

Legislature raises gross weight  
limit from 20,000 to 30,000  
lb. after hard battle

A 50-per cent jump in allowable gross weight of trucks operating over state highways in Alabama was voted on September 12 by the legislature when it raised the limit from 20,000 to 30,000 lb., thereby adding an area of some 52,000 sq. miles to the "happy hunting grounds" of heavy interstate trucking.

The bill was passed, however, only after a hard fight between the truckmen, on the one hand, and railroad employees and county road officers on the other, in which, it is rumored, political pressure played no small part. It is the opinion of observers of the scrap that the majority of both legislative bodies were opposed to raising the limit, but succumbed in "the old game". Governor Frank Dixon (whose law partner, Lloyd G. Bowers, is counsel for the Motor Vehicle Association of Alabama) openly asserted his support of the weight-lifting bill and is reported to have told a joint legislative committee representing the railroad brotherhoods and A. F. of L. he could not be neutral, but was committed to an increased weight limit because he felt that the development of the state was being retarded by the present code. He urged the parties to compromise at 30,000, stating that unless they agreed to such a limit, he would go further by favoring 40,000 lb.

The truck interests featured their campaign with public distribution of a 21-page pamphlet entitled "Take Down the Bars", which purported to prove that present truck weight limits hamper the marketing of Alabama's products in Northern markets. In this connection there was also introduced (without development) the theme of the "unfair" Southern railroad freight rate structure in an effort to show that the weight limitation on trucks "discriminates against Alabama farmers, manufacturers and shippers by hampering the free movement of Alabama products over Alabama highways in precisely the same way as do unfair railroad freight rates to points in 'Official Territory'." The pamphlet emphasized its chief point that "any threat to highway transportation is a threat to the farmer"; that one haul of 40,000 lb. is cheaper than two hauls of 20,000 lb. each (i.e. for farmers); and that many farmers are arrested for overweight truck under the "burdensome" restrictions. Point No. 2 was that the trend is toward uniformity in state weight codes; a limit of 40,000 lb. is the coming uniform standard

for the south. Lastly came the customary phony arguments that trucks pay more taxes than railroads, that they employ more men and that the railroads have lost only two per cent of their business to the trucks anyway.

Sometime later the Alabama Railroad Association came out with an answering pamphlet entitled "Take Off the Lid", whose major argument was that what purports to be a plea to the Alabama legislature on the behalf of the farmers and small producers of the state is actually a piece of propaganda for the large interstate trucking companies. Then, on the contention that large expenditures for main roads mean less money for farm-to-market and inter-county arteries, the booklet cited the speeches of farm representatives; a poll of Dr. Gallup's American Institute of Public Opinion; petitions signed by some 44,000 Alabama voters; and a resolution of the United States Conference of Mayors passed this summer asking not only that weight limits not be raised but that high present limits be reduced, to show that public opinion does not coincide with the desires of for-hire truckmen. Other questions covered include references to the inequality of road conditions among the states, precluding standard weight codes; the alleged inability of Alabama's roads to stand up under hard service and the overwhelming proportion of roads designed for light traffic to modern concrete arteries; and the truth about truck "taxes".

Whereas the state has not heretofore stipulated any but gross weight limits, the new code, besides setting the 30,000-lb. ceiling on gross weights, provides for an axle limit of 16,000 lb. (about halfway between the lowest and highest state permissions in the U. S.), a wheel load limit of 8,000 lb. and a limit of 600 lb. per inch of tire width. The new limits, it is understood, apply only over state-built highways, counties being permitted to retain the old limits if desired.

This concession is probably in answer to a resolution passed by the last annual convention of the Association of County Commissioners of the state in June petitioning the governor and legislature to oppose all proposals to increase the present authorized size and weight of motor vehicles permitted to operate on the highways "in order to protect the vast investment" made by the counties in roads and bridges, as well as the state highway system, and "in order that the lives and property of the users of such highways may not be further endangered."

### Allegheny Board Foresees 16.3 Per Cent Increase in Carloadings

The Allegheny Regional Advisory Board, at its 42nd regular meeting at Johnstown, Pa., on September 13, forecast for its district total carloadings of 805,381 for the fourth quarter, a 16.3 per cent increase over the same quarter of 1938. Most significant increases were 25 per cent in iron and steel, 15 per cent in coal and coke and 15 per cent in brick and clay products. F. W. Rosser, general manager, Western district, Erie, serving as temporary chairman of the Railroad Contact committee, brought reports from trunk lines stating that shop

forces were working on bad order equipment and that a substantial reduction in such rolling stock would be made during the fourth quarter.

A plea for railroad co-operation in the marketing of coal under modern competitive conditions was sounded by John D. Battle, executive secretary, National Coal Association, who was the luncheon speaker. He first pointed out the similarity between the railroad and the coal industries in having to meet increasingly stiff competition, some of which is subsidized and much uneconomic; in experiencing a severe de-

cline in tonnage output and traffic, respectively; in meeting steadily mounting tax loads and in facing the necessity of modernizing plant and equipment calling for a large capital investment, difficult to finance under existing conditions. He also stressed briefly the mutuality of interest between the two industries, each serving as a large customer of the other.

Of the railroads as a customer for coal, Mr. Battle pointed to the large reduction in fuel consumption due not only to the decline in the volume of railroad traffic and fewer train-miles operated, but to in-

## Charles M. Schwab Passes at 77

Charles M. Schwab, chairman of the board of the Bethlehem Steel Corporation, and known as "king of steel" since the opening of the century, died of coronary thrombosis, at the age of 77, on September 18 at his home in New York. Mr. Schwab had been in ill health for some time.

At 17, having completed his classroom schooling, Mr. Schwab swept out Spiegelmire's grocery store in Braddock, Pa., daily; at 19 he was chief engineer of the Edgar Thompson Works of the Carnegie chain of steel proper-

In 1892 his jurisdiction was extended to include Homestead.

Delighted by the way Mr. Schwab created amicable relations with labor after the Homestead strike of 1892, Carnegie's admiration for him grew and, in 1897, he appointed him president of the entire Carnegie Steel Co., Ltd.

Several years of exciting negotiations between the rival Carnegie and Morgan interests, led largely by Mr. Schwab, produced the United States Steel Corporation in 1901 with the "steel master" as president. Mr. Schwab had "too many bosses" here, however, and resigned in 1903 to embark on the ambition of his life—the upbuilding of his own steel enterprise. In 1904 he organized what he later called his "life"—the Bethlehem Steel Corporation,—taking over a somewhat moribund property specializing in ordnance manufacture. This he soon expanded into one of America's major industrial enterprises. Our entrance into war saw him as director-general of the Emergency Fleet Corporation. After the Armistice, he decided to place Bethlehem in the hands of Eugene Grace (its president since 1916) and experienced associates; Mr. Schwab continued to advise as chairman but held firm to the principle of non-interference until his death.

Bethlehem under Mr. Schwab has contributed much to the railway industry. In 1907, he was a leader in a movement by steel producers to roll steel rails on approved standards, to allay the current distress of the American Railway Association over increasing rail failures. In 1916 Bethlehem took over the Pennsylvania Steel Company, specialists in steel rail making. In 1922, the company absorbed the Cambria Steel Company and Harlan & Hollingsworth, manufacturers of freight and passenger cars, respectively, and since that time has been a major developer of equipment improvements. About 12 years ago Bethlehem placed on the market an auxiliary locomotive for trailing or tender trucks.

Mr. Schwab was well-known to railroad men during and after the years of the incredible "steel era" and his humor, boyish energy and knowledge of the problems of their own industry will long be remembered.



Charles M. Schwab

ties. He had been given a job as a stake-driver by the famed Captain Bill Jones, the plant's general manager, who recognized the ability of his prodigy-apprentice. Then, by studying chemistry in a home laboratory, the young executive pioneered in the early stages of metallurgy as applied to the steel business, while, together with Captain Jones, he introduced labor-saving devices to eliminate the crude process of steel manufacture then existent. Result: At 25, Mr. Schwab was superintendent of Andrew Carnegie's Homestead plant, one of the largest steel works in the country. Two years later he succeeded Jones as general superintendent of the Edgar Thompson Works.



creased efficiency in coal utilization as well. As to other factors, he declared: "Frankly, we do not take kindly to Diesel engines and to railroad electrification, and doubt its economic justification, all factors considered, especially the loss to labor in mines and on railroads and the resultant loss in general purchasing power." Railroad rates on coal, he implied, are somewhat out of line with competitive conditions and held that it is to the advantage of the carriers "to do whatever may be necessary to keep coal on the rails even to a drastic reduction here and there."

Speaking of marketing conditions, Mr. Battle pointed to the fact that the National Coal Association and its members have distributed millions of pieces of promotional literature, in which distribution the railroads have played a large part. He believes that the carriers could go still further, however, to get into a coal market promotion campaign on their own initiative and account.

### Carl R. Gray Scholarships

Scholarships which the Union Pacific has awarded annually to members of 4-H clubs and similar organizations in the eleven states served by the railroad, will hereafter be known as The Carl Raymond Gray Scholarships, in honor of the carriers late president.

### "Silver Meteor" to Provide Daily Winter Service

The Seaboard Air Line will provide daily all-coach "Silver Meteor" service between New York and Miami, Florida, and every third day between New York and Tampa-St. Petersburg, Fla., during the winter season, starting about December 1. This increase in the number of runs of the Silver Meteor (which at pres-

ent gives every third day service between New York and Miami) is made possible by the purchase recently of two additional streamlined, stainless steel seven-car trains and three of a total of nine 2,000-hp. Diesel-electric locomotives, reported in the current and July 22 issues of *Railway Age*.

The remaining six new locomotives will be used on the West Coast "Orange Blossom Special" between Washington, D. C., and Tampa-St. Petersburg, Fla., during the winter months and on other through passenger trains during the remainder of the year.

### Time Marches On—By Rail

Time, Inc., publishers of "Time" and "Life" magazines, are letting railroad employees know the extent to which they contribute to railroad traffic. A full-page back-cover advertisement in the current issue of "The Train Dispatcher", official organ of the American Train Dispatchers' Association, points out that the company moves 50 carloads of paper into Chicago every week where they are used to manufacture 2,500,000 weekly copies of "Life" and 1,000,000 weekly copies of "Time", which move right out again every week in the form of completed copies via railway post office and railway express. Declares the advertisement, "Their prompt and regular delivery, 'Time' on Thursday, 'Life' on Friday, bespeaks the efficiency and the co-operation of all those services which unite in the handling of rail movements in the United States". Signed Time, Inc.

### Fast Freight Service on M-K-T

The Missouri-Kansas-Texas on September 16 inaugurated fast freight service from St. Louis, Mo., and Kansas City to Texas points, designed to save one full day. Cars leave St. Louis at 8 p.m. and

Kansas City at 11 p.m. and arrive in Houston at 6 a.m. the second morning and San Antonio at 6:30 a.m.

### Would Merge U. P. Subsidiaries

The Interstate Transit Lines, a Nebraska corporation and the Union Pacific Stages of California, both motor carrier subsidiaries of the Union Pacific, have asked the Interstate Commerce Commission for authority to merge their operations in the name of the Nebraska corporation because of the dissolution of the California corporation.

### Railway Editors to Meet October 27

The American Railway Magazine Editors' Association will hold its Fall business meeting at The Greenbrier, White Sulphur Springs, W. Va., on the afternoon of October 27. Members of the association are invited to attend the sessions of the Chesapeake & Ohio Public Relations Conference and banquet to be held in the same place October 27 and 28.

### P. R. R. Information Supervisors Appear on Air

L. A. Macaulay and John Dominey, two experienced supervisors of the telephone information bureau at Pennsylvania station, New York, appeared on the "Quiz of the Town" program on station WNYC on September 14. Mr. Macaulay has been with the road for 25 years while Mr. Dominey has 19 years' service. In view of these service records, the two men were well acquainted enough not only with the railroad but also with New York city itself to do full justice to the questions fired at them by the conductor of the program.

### Northwest Revises Forecast Upward

The Pacific Northwest Advisory Board, which forecast a 5.8 per cent increase in carloadings for the fourth quarter of 1939 as compared with the same period of 1938, revised its forecast upward to 15 per cent at its forty-third regular meeting at Spokane, Wash., on September 13. Members adopted a resolution urging rail carriers to step up their maintenance and repair programs.

### Adjustment Board Attack Discussed

Representatives of the railways and the unions held a conference at Chicago on September 14, to discuss the issues growing out of attacks on the National Railroad Adjustment Board. H. A. Enochs, chief of personnel of the Pennsylvania, acted as chairman of the carriers' committee of six, while James A. Phillips, president of the Order of Railway Conductors and acting chairman of the Railway Labor Executives Association, headed the committee of eight labor representatives.

### C. of G. Employees to Fete Receiver Pollard on Birthday

The Employees' Club of the Central of Georgia at Savannah, Ga., is sponsoring a birthday dinner for H. D. Pollard, receiver of the road, at the De Soto hotel on October 4, to which it is inviting all employees of the road and its affiliate, the Ocean Steamship Company. Plans con-

## N. A. M. Decries War, Champions Democracy

Howard Coonley, president of the National Association of Manufacturers, gave his organization's views on the war crisis in a statement issued September 19, reading in part as follows:

"American industry hates war.

"War destroys lives. War wrecks homes. Economic chaos and years of crushing depression are its inevitable aftermath. It imperils representative democracy. Free institutions are among its early victims. Ultimately no one can escape the ruin of war.

"A public will to peace, coupled with wise public policies and affirmative action to this end by our government will keep us out of war. A fatalistic attitude that war is inevitable for us is absurd. It presupposes that America cannot conduct itself intelligently to preserve peace and its own interests.

"Europe's problems do affect us, but our domestic problems still must come first.

"If yesterday industry was the only source of prosperity and reemployment, today it is as well the keystone of pre-

paredness and peace. Under any conditions, America must depend on a smoothly functioning, efficient industrial system.

"Manufacturers will not relax their efforts to achieve and maintain sound improvement in our domestic economy.

"The N. A. M. calls upon all its members to exercise vigilance against any price or profit policies not justified by actual cost and anticipated cost of replacement.

"The use of this crisis as an excuse either to extort unjustifiable profits or to pursue partisan political objectives is not only indefensible and dangerous, but reprehensible morally. Nor should pleas of 'emergency' be utilized as an excuse for reaching objectives which the American people would not otherwise sanction.

"The present situation calls for agreement on common objectives, but the democratic process of consultation and criticism must never be abandoned. In a world distraught by force the best way to preserve representative democracy is to practice it."

template the seating of several hundred guests. Dinner will be handled on a subscription basis of \$1 per plate. The committee on arrangements has arranged music and a short speaking program.

### P. R. R. Scholarships Awarded

Announcement has been made of the award of two college scholarships to sons of Pennsylvania employees, effective with the opening of the current academic year. Known as the Frank Thomson scholarships, the awards have been given to J. W. Diffenderfer, Jr., Collingswood, N. J., son of J. W. Diffenderfer, Sr., train dispatcher, Atlantic division, Camden, N. J., and to W. J. Andrews, Philadelphia, Pa., son of C. R. Andrews, chief accountant, secretary's department, Philadelphia. The former will matriculate at Bucknell University in civil engineering and the latter in mechanical engineering at Cornell.

### Would Deny Rock Island Motor Carrier Rights

The Rock Island Motor Transit Company, a wholly-owned motor carrier subsidiary of the Chicago, Rock Island & Pacific, would be denied the right to operate as a common carrier by motor vehicle of general commodities between Wichita, Kans. and Hutchinson over U. S. Highway 81 and 50-S if the Interstate Commerce Commission adopts a proposed report of its Joint Board No. 52, composed by Andrew F. Schoepel of Kansas. The proposed report holds that the application of the Rock Island was premature as the route is now served by an interurban road which may soon be abandoned, but has not been as yet.

### Petroleum Products Rates in Oklahoma Reduced

The Oklahoma Corporation Commission on September 6 granted the railroads permission to reduce intrastate rates on petroleum products 25 per cent for hauls under 400 miles, but refused to grant the railroad's request for a 43 per cent reduction to meet alleged unfair competition from trucks. The order is tentative pending the outcome of a joint hearing by the Oklahoma and Kansas commissions and the Interstate Commerce Commission. The Oklahoma, Texas, Arkansas and Louisiana commissions will meet at Dallas, Tex., later this month to chart a course against alleged discriminatory freight rates covering several commodities.

### Central's "Pacemaker" Carries 14,500 Passengers

The New York Central's Pacemaker, all-coach train operated daily between New York and Chicago on a 17-hour schedule, which was inaugurated July 28, carried a total of almost 14,500 passengers during August, the first full month of operation, and earned a gross revenue therefrom approaching \$250,000. The average number of passengers carried in each direction is over 200 per day. The heaviest single day's traffic occurred August 19 when the Pacemaker carried a total of 976 passengers—540 eastbound and 436 westbound.

That the Pacemaker is creating new

### R. R. Day at N. Y. World's Fair September 30

September 30 has been scheduled as a special day for railroad officers and employees at the New York World's Fair. In order to give the railroad men every opportunity to see the features of the exposition, the World's Fair committee of the Eastern President's Conference have decided not to arrange special ceremonies for the day. The operapageant "Railroads on Parade" will be presented as usual at 12:30, 2:00, 3:30, and 5:00 on Saturday, September 30, and Sunday, October 1. An extra performance may be given at 11:00 a. m., on September 30. "Railroads at Work," the large model show, will be presented every 45 minutes, the first show starting at 10:30 a. m.

traffic, and not merely taking away business from older runs on the railroad is indicated, Central officials believe, by the fact that the average number of coach passengers between New York and Chicago in August increased materially over the number of passengers carried in July.

New features to be added to the train now under consideration includes a lounge-observation car of modern design and a women's maid.

### Frisco Starts Friendly Service Campaign

A campaign, stressing the friendly and informal atmosphere of railway travel and using a cartoon strip to carry out the theme, has been started in on-line metropolitan newspapers by the St. Louis-San Francisco. The series is entitled, "Interesting People Travel on the Frisco," and consists of six different cartoons. Among the topics covered are the meeting of a youngster with a baseball hero; the conversation between a salesman and a visiting rajah, and the conversion of a dining car into a conference room where a football team enroute to a game works out some new tactics. Each insertion will also carry copy pertinent to the facilities offered the area covered by the publication.

### A. C. L. and F. E. C. Offer Prizes for Naming New Streamliner Service

The Atlantic Coast Line and the Florida East Coast, which expect to inaugurate a service by streamlined, Diesel-electric, deluxe coach trains daily between New York and Florida on or about December 1, are offering \$650 in cash prizes for the submission of a name for the run. Anyone may submit the entry form, upon which he is to write the suggested name and an explanation of the reasons for the suggestion in not more than 20 words. Communications should be addressed to contest judges of the Atlantic Coast Line and the Florida East Coast, 16 East 44th street, New York, before midnight, October 10. Prizes offered are a first of \$300, a second of \$150, a third of \$75, and 25

prizes of \$5 each. It is expected that the prizes will be awarded by November 1.

As reported in previous issues of *Railway Age* the new service is to be covered by two 7-car streamliners of the Atlantic Coast Line and a similar train of the Florida East Coast, to be operated over these two roads, the Richmond, Fredericksburg & Potomac and the Pennsylvania.

### Club Meetings

The Toronto Railway Club will hold its next meeting on October 23 at 7:45 p. m. at the Royal York Hotel, Toronto, Ont. Two films prepared by Union Switch & Signal Co. dealing with train dispatching and centralized traffic control, will be shown. A short paper will be presented by Earl S. Berry, assistant district manager, Union Switch & Signal Co.

The Indianapolis Car Inspection Association will hold its next meeting on October 2 at the Hotel Severin, Indianapolis, Ind., at 7 p. m.

The Railway Club of Pittsburgh will hold its next meeting on September 28 at the Fort Pitt hotel, Pittsburgh, Pa. R. W. Starkey, district sales manager, Railway Express Agency, Inc., Philadelphia, Pa., will present a paper entitled "Romance of Express Transportation."

### Civic Officers Still Seek to Revive Westchester Road

A special conference of officials of communities in Westchester county, New York, was held in White Plains, September 20, to discuss ways and means of preventing dismantling of the defunct New York, Westchester & Boston electric line, service on which was abandoned December 31, 1937. Mayor Pearsall of Mount Vernon told the members that the meeting was a "last gesture" to try and save the road from the junk-pile. Receivers of the road have already asked the United States District Court for permission to sell all movable equipment next month. Rail, ties and overhead propulsion wires have already been removed on that part of the line from New Rochelle to Port Chester which was on a right-of-way adjacent to, and rented from, the New York, New Haven & Hartford, and station buildings demolished. The removed rails, it is reported, were relaid by the New Haven in the Fall of 1938 in the rehabilitation of its lines after the flood and hurricane in New England.

### New Equipment Installed

Class I railroads in the first eight months of 1939 put in service 12,481 new freight cars, the Association of American Railroads announced on Sept. 21. In the same period last year Class I roads put 7,502 in service. New steam locomotives put in service in the first eight months of 1939 totaled 32 compared with 148 in the same period of 1938. New electric and Diesel locomotives installed in the eight months' period this year totaled 134 compared with 92 in the same period last year.

Class I railroads on September 1 had 8,779 new freight cars on order, compared with 8,892 on the same day last year, and 8,473 on August 1, 1939.

New steam locomotives on order on September 1, 1939, totaled 63, compared



with 14 on September 1 last year, and 72 on August 1, 1939. New electric and Diesel locomotives on order on September 1 this year numbered 31 compared with 26 one year ago and 46 on August 1, 1939.

Freight cars and locomotives leased or otherwise acquired are not included in the above figures.

### Freight Car Loading

Loading of revenue freight for the week ended September 16 totaled 805,733 cars, the Association of American Railroads announced on September 21. This was an increase of 138,324 cars, or 20.7 per cent, above the preceding week which included the Labor Day holiday, an increase of 145,570 cars, or 22.1 per cent, above the corresponding week in 1938, but a decrease of 17,062 cars, or 2.1 per cent, below the same week in 1937.

As reported in last week's issue, the loadings for the previous week ended September 9 totaled 667,409 cars, and the summary for that week as compiled by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loading			
For Week Ended Saturday, September 9			
Districts	1939	1938	1937
Eastern .....	131,639	109,520	131,401
Allegheny .....	127,894	102,270	138,504
Pocahontas .....	52,481	44,215	48,760
Southern .....	97,081	89,277	97,816
Northwestern ..	105,974	79,432	128,756
Central Western ..	102,770	95,221	108,155
Southwestern ..	49,570	48,772	54,810
<b>Total Western</b>			
Districts ....	258,314	223,425	291,721
<b>Total All Roads</b>	<b>667,409</b>	<b>568,707</b>	<b>708,202</b>
Commodities			
Grain and grain products ....	36,297	30,517	31,700
Live stock ....	16,650	14,667	14,199
Coal .....	124,600	99,800	118,355
Coke .....	7,792	4,950	9,348
Forest products ..	30,003	26,619	33,656
Ore .....	49,478	24,994	71,586
Merchandise l.c.l.	135,770	134,392	147,031
Miscellaneous ..	266,819	232,768	282,327
<b>September 9 ...</b>	<b>667,409</b>	<b>568,707</b>	<b>708,202</b>
<b>September 2 ...</b>	<b>721,748</b>	<b>648,029</b>	<b>801,539</b>
<b>August 26 ...</b>	<b>688,591</b>	<b>620,557</b>	<b>783,476</b>
<b>August 19 ...</b>	<b>674,237</b>	<b>597,884</b>	<b>777,150</b>
<b>August 12 ...</b>	<b>665,197</b>	<b>589,568</b>	<b>773,782</b>

Cumulative Total,  
36 Weeks ... 21,970,466 20,112,380 26,642,409

**In Canada.**—Carloadings for the week ended September 9 totaled 60,572, according to the compilation of the Dominion Bureau of Statistics, as compared with 51,793 last year and 65,314 for the previous week. (The September 9 loadings included the Labor Day holiday).

	Total Cars Loaded	Total Cars Rec'd from Connections
<b>Total for Canada:</b>		
Sept. 9, 1939 .....	60,572	19,865
Sept. 2, 1939 .....	65,314	20,701
Aug. 26, 1939 .....	54,384	19,469
Sept. 10, 1938 .....	51,793	17,493

<b>Cumulative Totals for Canada:</b>		
Sept. 9, 1939 .....	1,618,160	771,128
Sept. 10, 1938 .....	1,608,449	720,537
Sept. 11, 1937 .....	1,762,005	959,744

### August Operating Revenues 8.6 Per Cent Above August, 1938

Preliminary reports from 90 Class I railroads, representing 80.8 per cent of total operating revenues, made public by the Association of American Railroads, show that these roads, in August, 1939, had estimated operating revenues amounting to \$276,948,929 compared with \$254,907,195 in the same month of 1938, and \$378,580,990

in the same month of 1930. Operating revenues of those roads in August, 1939, were 8.6 per cent above those for August, 1938, but 26.8 per cent below August, 1930.

Freight revenues of the Class I roads in August, 1939, amounted to \$221,389,396 compared with \$203,518,072 in August, 1938, and \$289,057,567 in August, 1930. Freight revenues in August, 1939, were 8.8 per cent above the same month of 1938, but 23.4 per cent below the same month in 1930. Passenger revenues in August, 1939 totaled \$32,809,008 compared with \$29,945,074 in August, 1938, and \$56,453,249 in August, 1930. For the month of August, 1939, they were 9.6 per cent above the same month in 1938, but 41.9 per cent below the same month in 1930.

### Daylight Saving Ends—Schedules Change

At 2 a. m., Sunday, September 24, new timetables will take effect throughout the country in conjunction with the end of daylight-saving time in urban areas. Those schedule changes publicly announced by railroad information offices up to time of writing follow.

The New York Central's 'Commodore Vanderbilt' westbound will become a 17-hour train, as is the eastbound Commodore at present. It will leave New York at 4:30 p. m. and arrive in Chicago at 8:30 a. m.

The "Knickerbocker" will leave New York at 5:15 p. m., instead of 5:30 and arrive in Cincinnati, Ohio, at 11:35 a. m., and St. Louis, Mo., at 3:25 p. m. The "Empire State Express" will leave New York at 9 a. m. instead of 8:50. The "Water Level" will leave Chicago at 4:05 p. m. instead of 3:20 p. m. and arrive in New York at 10:30 a. m., instead of 9:45 a. m. The "Fifth Avenue Special" will leave Chicago at 11:15 a. m., instead of 11, and arrive in New York at 7:40 a. m. instead of 7:30 a. m.

The Seaboard Air Line's Southern and Cotton States Specials will run to Florida, mid-South and Birmingham, Ala., two hours faster than last Fall's running time. The Robert E. Lee will leave New York at 6:15 p. m., instead of 6:30.

Three leased or subsidiary lines of the Erie in the New Jersey suburban area out of Jersey City will establish a curtailed service on Monday. The Northern of New Jersey will discontinue four eastbound and five westbound trains on weekdays; the New Jersey & New York, three in each direction and the Orange branch of the New York & Greenwood Lake three in each direction. All three lines had originally intended to make even more drastic cuts in service but compromised on the above after a conference with officers of municipalities affected, under the auspices of the New Jersey Board of Public Utility Commissioners in Newark on September 19.

### Hearing Dates Changed in Freight Forwarding Case

The Interstate Commerce Commission has modified its notice of hearings in the reopened Freight Forwarding Investigation which were detailed in the *Railway Age* for August 12, page 264. At the Chicago hearing on October 30, at the Hotel Morrison, evidence will be received

concerning the practices of rail lines operating in Central Freight Association and western trunk-line territories, including particularly the following lines:

Pere Marquette; New York, Chicago & St. Louis; Chicago & Eastern Illinois; Chicago, Burlington & Quincy; Chicago & North Western; Chicago, St. Paul, Minneapolis & Omaha; Wabash; Minneapolis, St. Paul & Sault Ste. Marie; Minneapolis & St. Louis; Illinois Central; Chicago, Milwaukee, St. Paul & Pacific; Chicago, Rock Island & Pacific; Atchison, Topeka & Santa Fe (Kansas City, Mo. and East); and Chesapeake & Ohio. And also the practices of common carriers by motor vehicles operating in Central Freight Association and Northwestern territories.

The San Francisco hearing assigned for November 16, is postponed to November 20 at the Hotel Empire. At the San Francisco hearing evidence will be received concerning the practices of the following rail lines:

Atchison, Topeka & Santa Fe (West of Kansas City, Mo., except Texas Lines); Southern Pacific (El Paso, Tex., and West); Western Pacific; Spokane, Portland & Seattle; Great Northern; and Northern Pacific. And also the practices of common carriers by motor vehicle operating in the Pacific-southwest and Pacific-northwest territories.

The Dallas, Tex., hearing assigned for November 23 has been postponed to November 29 at the Baker Hotel; while the Atlanta, Ga., hearing scheduled for November 28 has been shifted to December 4 at the Atlanta-Biltmore Hotel. Examiners Trezise and Haden will conduct the hearings as previously announced.

### I. C. C. Warns Auto Transporters

In an open letter to automobile transporters and their trade associations, W. Y. Blanning, director of the Interstate Commerce Commission's Bureau of Motor Carriers, calls attention to the "potentially dangerous practice of a relief or spare driver obtaining rest or sleep in one of the vehicles being transported on motor vehicles hauling automobiles". He goes on to say that this practice is so dangerous it should not be permitted.

The letter directs the automobile transporters' attention to the fact that an accident report recently filed with the commission related the death of a relief driver who was riding and probably sleeping in one of the cars being transported on a tractor semi-trailer combination. It is further pointed out that the relief driver was found dead when the active driver stopped in the early morning. The coroner's verdict, according to Mr. Blanning, held that his death was due to carbon monoxide gas.

It is further related that information submitted to the commission would indicate that the fatal fumes seeped into the car either from the exhaust of the tractor or from the engine of the car in which he was riding, which he may have started in order to help keep warm.

Director Blanning closes his letter by stating that "In this connection, it should be noted that time spent by a relief driver riding in one of the cars being transported in truckaway operations cannot be classified

as 'off duty' time under the hours of service regulations of this commission, since the facilities thus used would not comply with the requirements for a 'sleeper berth' set forth in the said regulations".

### Bus Revenues Up 18.4 Per Cent Over June, 1938

Class I motor carriers of passengers reported June revenues of \$10,677,664 as compared with \$9,016,281 for June, 1938, an increase of 18.4 per cent, according to the monthly compilation prepared by the Interstate Commerce Commission's Bureau of

the new tariff both types of shipment take the class C rate of \$4.27 for the 30-mile haul. Reductions under the new tariff are even greater in the higher distance categories. For example, on a 400-mile haul, a class A shipment formerly took a rate of \$30.05 per ton and a class B shipment a rate of \$21.81. Under the new tariff both shipments, classified C, take a rate of \$17.72, a reduction of more than one-third under the class A rate and almost one-fifth under the class B rate.

Mr. Sullivan points out that by "stabilizing" the rates in this way many "inequalities and anomalies" have been removed.

	Passenger Revenue		Passengers Carried	
	June, 1939	June, 1938	June, 1939	June, 1938
New England Region .....	\$567,449	\$411,258	1,038,091	865,514
Middle Atlantic Region .....	1,839,340	1,355,689	2,880,633	2,520,336
Central Region .....	1,973,050	1,417,455	1,799,285	1,529,696
Southern Region .....	1,985,083	1,899,598	2,237,534	1,964,807
Northwestern Region .....	442,591	392,202	321,698	297,302
Mid-Western Region .....	994,079	879,065	532,210	497,523
Southwestern Region .....	1,279,480	1,207,096	1,185,769	1,105,265
Rocky Mountain Region .....	130,874	131,620	86,763	87,966
Pacific Region .....	1,465,718	1,322,298	1,316,269	1,100,330

Statistics and Bureau of Motor Carriers from 147 monthly reports representing 148 bus operators. Passengers carried increased 14.3 per cent, from 9,968,739 to 11,398,252.

### New Zealand Simplifies Class Rates

On July 1 the New Zealand Government railways placed in operation a simplified freight tariff which reduced the number of rating classes for general merchandise from four to two and placed rates on higher-value goods at a lower average level. The background of the move is described in the annual statement of the Minister of Railways, D. G. Sullivan, for the financial year ended March 31, 1939. Simply stated, under the new classification shipments previously carried at the two higher class rates (A and B), are now carried at the next lower rate (C), which in effect is the introduction of lower standard rates. For example, a ton of freight under class A for a 30-mile haul formerly took a rate of 30 shillings 10 pence (\$5.85); a ton of class B freight took a rate of \$4.99. Under

Competition with highway vehicles, he claims, has brought many isolated rate reductions to meet competition, which in turn produced a lack of balance in the transport charges for similar services as between different trading centers. The simplification of the tariff and the stabilization of rates thus involves the removal of local rates in certain cases. While this change may bring about an increase in freight charges in merchandise between certain points, the increase is very largely if not entirely offset by the general application of lower standard rates. Certain articles of a light bulky or exceptional nature and freight requiring special handling will continue to take a somewhat higher rate than class C.

The New Zealand Government Railways enjoyed a record gross business during the financial year, its gross revenue, for the first time in the history of the Dominion, exceeding £9,000,000 (\$33,660,000). The previous year likewise established a record in gross operating earnings. A graph in the rear of the report indicates a steady rise in operating revenues since 1933. The highest revenue pre-depression year was in

1926 when the system took in £7,600,000.

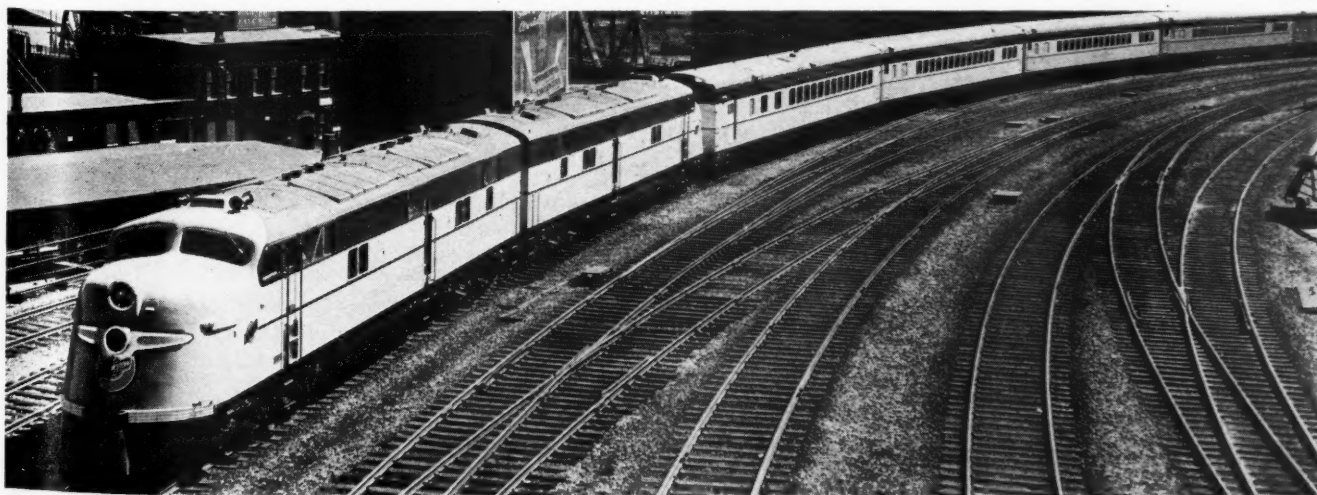
Net income for the year was £701,063 (\$2,621,976), equivalent to a 1.23 per cent return on capital investment, an increase of £68,266 over the net earnings of the previous year. The improved earnings, it is reported, were helped by a 10 per cent increase in fares and freight rates in the latter months of the financial year under review.

### "400" Placed in Service September 24

New streamlined equipment for the "400" which the Chicago and North Western operates between Chicago and the Twin Cities was placed in service on September 24. This nine-car Diesel-electric train, built by the Pullman-Standard Car Manufacturing Company, consists of a baggage-tavern car, seating 34 persons; four coaches each seating 52 persons in addition to those who can be seated in smoking rooms; a dining car seating 56 persons; two parlor cars, each seating 29 persons and a parlor-observation car, seating 26 persons. The power unit is a double end Diesel-electric locomotive built by the Electro-Motive Corporation. It is a dual unit consisting of two separate 2,000 hp. engines with cabs at each end.

The exterior color scheme is yellow and green, yellow being applied to the sides, and green to the roof, skirt and running gear. A variety of appurtenances and colors make up the interior decoration. In the coaches the seat coverings, blue, green and peach, sound the color note of each car. Burgundy, coral and rose are used in the dining car; blue, green and yellow in the parlor cars, and apricot, blue and tan in the observation car.

Prior to being placed in daily service, the train made its maiden run on September 17, carrying officers, members of the press and members of the Traffic Club of Chicago to Milwaukee and return. On the following day, the train was placed on public exhibition at Chicago, where 20,000 persons reviewed the train. On September 19, the train was given brake tests and was later exhibited in Milwaukee, while on September 20, it began an exhibition tour of Winona, Rochester, Mankato, St. Paul and Minneapolis.



The North Western's New Streamlined "400"—The Paint Job Is Yellow, with Letterboards and Roofs in Green



## Supply Trade

**Thomas C. Gray** has been appointed chief engineer of the **Franklin Railway Supply Company, Inc.**, New York.

**The Wood Preserving Corporation**, Pittsburgh, Pa., a subsidiary of the **Koppers Company**, has purchased the tie producing business of **B. Johnson and Sons**, Richmond, Ind.

**W. E. Hicks**, has relinquished his interest in and resigned as president and director of the **American Railway Excavators, Inc.**, St. Louis, Mo., and has established a new company, the **W. E. Hicks Construction Company**, St. Louis, Mo.

**The Hobbs-Western Company**, St. Louis, Mo., has purchased the tie producing operations of the **Tennessee Tie Company**, along the lines of the Nashville, Chattanooga & St. Louis in Tennessee, and along the lines of the Southern in Kentucky and Tennessee, and will conduct the business under the name of the Hobbs-Western Company.

**The General Electric Company** has appointed three assistants to the manager of its publicity department as announced by C. H. Lang, manager. **W. V. Merrihue** has been placed in charge of the apparatus division, **R. L. Gibson** of the general publicity division and **B. J. Rowan** of the administrative and production division; all with headquarters at Schenectady, N. Y.

**George E. Scott** has resigned as purchasing agent of the Missouri-Kansas-Texas to become vice-president and assistant sales manager of the **Scullin Steel Company**, St. Louis, Mo. Mr. Scott was born at Cleveland, Ohio, on May 27, 1885, and entered railway service in 1901 as a messenger boy on the Lake Shore and Michigan Southern (now a part of the New York Central) at Air Line Junction,



George E. Scott

Ohio. After serving as clerk to the assistant superintendent, secretary to the general superintendent, secretary to the assistant general manager and secretary to the vice-president, he resigned in 1912 to enter the employ of the Missouri-Kansas-Texas as

secretary to the president. In the following year, he was promoted to assistant purchasing agent, and in 1914 he was appointed acting purchasing agent. In the same year, he was made purchasing agent and served in this capacity until 1918, when he was also made purchasing agent of the St. Louis-San Francisco. During federal control, 1919-1920, he was also a member of the Regional Purchasing Commission, Southwestern Region. Since 1920, he has been purchasing agent of the Missouri-Kansas-Texas. Mr. Scott was chairman of the Purchases and Stores division of the Association of American Railroads in 1933, 34 and 35.

## OBITUARY

**John Franklin Miller**, until a few months ago vice-chairman of the board of directors of the Westinghouse Air Brake



John Franklin Miller

Company and an officer of other industrial organizations, died at Goshen, N. Y., on September 17, at the age of 80 years. Mr. Miller attended local schools and then entered Wooster College, Wooster, Ohio. He gave up his studies at the end of his junior year and served as station agent for the Baltimore & Ohio, near his home. He then traveled in Europe and became so interested in business that he never returned to college, although 40 years later, in 1921, Wooster College awarded him an A.B. degree for his success and standing in the business world. Mr. Miller's first connection with the Westinghouse interests was as district agent with the Philadelphia Company, from 1888 to 1889. For the next 10 years, he was manager of the East Pittsburgh Improvement Company and superintendent of the Turtle Creek Valley Water Company, and took a prominent part in building up the towns of Wilmerding, Pa., and East Pittsburgh. During this period he also acted as real estate agent for the Westinghouse Air Brake Company. In 1899, Mr. Miller gave up these duties to become assistant secretary of the Westinghouse Air Brake Company. He was advanced to auditor and then secretary in 1902. Three years later he was elected vice-president and in 1909 a director, succeeding H. H. Westinghouse in 1916 as president. He retired from the presidency two and a half years later and was elected vice-chairman of the board of

directors which relationship he maintained until shortly before his death. Mr. Miller also participated in the development of many other important industrial enterprises including banks and trust companies. He served as chairman of the board of the Pittsburgh Screw & Bolt Company, the Pennsylvania Central Air Lines, the First National Bank of Wilmerding and as a director of the Fidelity Trust Company of Pittsburgh.

## Equipment and Supplies

### New York Central to Spend \$10,000,000

The New York Central is planning an equipment-purchasing and modernization program to cost over \$10,000,000, according to an announcement made by President F. E. Williamson on September 19. The purchase of 3,500 steel hopper cars of 55 tons' capacity and 500 box cars, 50 ft. long, are included in the program. Definite plans have not yet been completed.

### Equipment for Canadian Roads

Transport Minister Howe of Canada announced recently that the Dominion government will purchase \$25,000,000 of new railway equipment, which will then be sold to the Canadian National and the Canadian Pacific and equipment trust certificates or the equivalent taken in return by the government. About \$15,000,000 of the new equipment would be for the Canadian National and the rest for the Canadian Pacific. The equipment will consist of some locomotives, and the balance will be box cars and long flat cars.

### Illinois Central to Spend \$8,000,000

The Board of Directors of the Illinois Central has approved the expenditure of \$8,000,000 for new equipment and repairs to existing equipment. As a result, an inquiry for freight cars has been revived and the railroad is now inquiring for 750 gondola cars, 750 50-ton hopper cars and 1,000 40-ft. box cars. Inquiries have also been issued for 10 Diesel-electric switching and transfer locomotives for use in the Chicago terminal where they will replace existing steam locomotives.

## LOCOMOTIVES

THE ERIE is considering the purchase of 7 or 8 Diesel-electric locomotives.

THE DETROIT, TOLEDO & Ironton has ordered two locomotives of the 2-8-4 type from the Lima Locomotive Works. Inquiry for this equipment was reported in the *Railway Age* of September 2, page 358.

THE LOUISVILLE & NASHVILLE has accepted delivery on two Diesel-electric locomotives, for use in its Louisville, Ky., yards, one purchased from the Electro-

Motive Corporation and the other from the American Locomotive Company.

**THE SEABOARD AIR LINE.**—An order has been signed by the receivership court approving the orders placed by the receivers of this road with the Electro-Motive Corporation for seven 2,000-hp. Diesel-electric passenger locomotives. This is in addition to the two locomotives ordered from the same builder and reported in the *Railway Age* of July 22, page 161.

## FREIGHT CARS

**THE ELGIN, JOLIET & EASTERN** is inquiring for 500 gondola cars and 1,000 hopper cars, all of 50 tons' capacity.

**THE BESSEMER & LAKE ERIE** is inquiring for 1,000 90-ton hopper cars, 500 50-ton gondola cars and 500 50-ton box cars.

**THE UNION RAILROAD COMPANY** is inquiring for 100 air-dump cars of 70-tons' capacity.

**THE YOUNGSTOWN & NORTHERN** is inquiring for 100 gondola cars of 70-tons' capacity.

**THE WISCONSIN CENTRAL** has ordered 100 automobile box cars and 100 flat cars from the Pullman-Standard Car Manufacturing Company.

**THE TENNESSEE COAL, IRON AND RAILROAD COMPANY** has ordered 49 70-ton ore cars from the Pullman-Standard Car Manufacturing Company.

**THE DELAWARE, LACKAWANNA & WESTERN** car repair program calls for rebuilding 600 coal cars of 50 tons' capacity, at its Keyser Valley shops, Scranton, Pa.

**THE UNITED STATES NAVY DEPARTMENT, BUREAU OF SUPPLIES AND ACCOUNTS**, is asking for bids until October 3 for 17 flat cars and 5 dump cars.

**THE BALTIMORE & OHIO** is inquiring for 1,000 hopper cars of 50-tons' capacity, 500 box cars of 50-tons' capacity and 500 gondola cars of 70-tons' capacity.

**THE WHEELING & LAKE ERIE** has placed contracts for 400 hopper cars of 50 tons' capacity with the Pullman-Standard Car Manufacturing Company and 100 with the Ralston Steel Car Company.

**THE NORFOLK & WESTERN** has ordered 750 hopper cars from the Virginia Bridge Company, 750 from the Ralston Steel Car Company and 500 from the Bethlehem Steel Company.

**THE MISSOURI PACIFIC's** 1939 equipment rehabilitation program, started in August, provides for general repairs to 466 freight cars, including 66 hopper cars of 55-tons capacity, 200 government type gondola cars and 200 gondola cars.

**ROYAL STATE RAILWAYS OF SIAM.**—Sealed tenders for the supply of underframes for four-wheeled wagons and bogies and underframes for bogie carriages will be received by the superintendent of stores, Royal State Railway, Bangkok, Thailand (Siam) up to 14:00 o'clock, December 6,

1939. Tender forms are obtainable from Messrs. Sandberg, 25 Broadway, New York City.

**THE VIRGINIAN** has ordered 500 steel hopper cars from its own shops. This is in addition to the order for 500 cars previously placed with its own shops, and reported in the *Railway Age* of September 9, page 386.

**THE UNION PACIFIC** has placed an order with company shops for the construction of 2,000 lightweight box cars at a cost of approximately \$6,000,000. These cars will be of similar design to the 3,400 built in company shops this year. Seven hundred special lightweight automobile cars have also been built in company shops this year. With the construction of new cars, the Union Pacific also is initiating a distinctive new color scheme for freight cars. Each of the cars designated for its Challenger merchandising service is painted a battleship gray, the lettering being in bright red.

## PASSENGER CARS

**THE MISSOURI PACIFIC** has completed the rebuilding of four baggage cars in its own shops.

**THE NEW YORK, SUSQUEHANNA & WESTERN** has placed an order with the American Car & Foundry Co., for two de luxe rail motor cars with double-end control.

## IRON AND STEEL

**THE ATLANTIC COAST LINE** has ordered 8,500 tons of 100-lb. rails from the Tennessee Coal, Iron & Railroad Company.

**THE CHICAGO, ROCK ISLAND & PACIFIC** has ordered 12,000 tons of 112-lb. rails, placing 7,000 tons with the Colorado Fuel & Iron Co., and 5,000 tons with the Inland Steel Company.

**THE CHESAPEAKE & OHIO** has ordered 32,000 tons of 131-lb. rails, placing 17,280 tons with the Carnegie-Illinois Steel Corporation, 11,520 tons with the Inland Steel Company and 3,200 tons with the Bethlehem Steel Company.

**THE NEW YORK, CHICAGO & ST. LOUIS** has ordered 7,000 tons of 112-lb. rails, placing 4,550 tons with the Carnegie-Illinois Steel Corp., 1,250 tons with the Inland Steel Co., and 1,200 tons with the Bethlehem Steel Co.

**THE PERE MARQUETTE** has ordered 3,000 tons of 112-lb. rails and 1,000 tons of 105-lb. rails, the latter for use in Canada, placing 1,410 tons with the Carnegie-Illinois Steel Corp., 1,110 tons with the Inland Steel Co., 480 tons with the Bethlehem Steel Co., and 1,000 tons with the Algoma Steel Corp. of Canada.

**THE PENNSYLVANIA** has placed orders for 50,000 gross tons of steel rail as follows: Carnegie-Illinois Steel Corporation, 25,000 tons; Bethlehem Steel Company, 22,000 tons; Inland Steel Company, 3,000 tons. The rail will all be standard sections, principally 152 lb. and 131 lb. to the yard.

# Financial

**BALTIMORE & OHIO.**—*Extension of Maturity Date of Notes and R. F. C. Loans.*—After finding that this company is not in need of financial reorganization at this time, if its interest deferment plan becomes effective, Division 4 of the Interstate Commerce Commission has authorized the extension of the time of payment by it of loans by the Reconstruction Finance Corporation of \$42,110,400, matured August 1, 1939; \$14,473,178, maturing April 1, 1942, and \$13,233,000, maturing September 1, 1942, for a period ending not later than five years from the date the plan becomes effective. At the same time Division 4 authorized the extension of \$13,490,000 of secured notes of this company, held by the R. F. C., for a period of five years from August 1, 1939.

In another decision announced at the same time, this company was authorized to extend the dates of maturity of \$2,955,000 of four per cent registered serial collateral notes to a date five years after the effectuation of the interest deferment plan, dated August 15, 1938, but not later than August 1, 1944.

**CHICAGO & NORTH WESTERN.**—*Payments.*—The federal district court at Chicago on September 19 approved the recommendation of the trustee that overdue interest be paid on the Des Plaines Valley Railway and the Sioux City and Pacific Railway bonds. The court also approved the trustee's recommendation for the payment of \$510,000 in principal payments to the Reconstruction Finance Corporation, together with unpaid interest on the R. F. C. loan. Total payments to the three creditors amount to \$1,863,850.

**ILLINOIS CENTRAL.**—*Bonds.*—Division 4 of the Interstate Commerce Commission has authorized this company to buy in its own bonds in the open market and to deposit them with the Reconstruction Finance Corporation in lieu of the principal retirement requirements of its present loan agreement with the R. F. C. The commission's decision pointed out that the road secured an extension of maturity on \$35,170,000 of R. F. C. loans in May to a date not later than May 31, 1944. The extension was made on the condition that the company would reduce the principal amount of these loans by at least one per cent or \$351,700 a year, payments beginning in May, 1940.

The road's present application, which Division 4 approved, asks that in lieu of this requirement the carrier be permitted to employ the \$351,700 either in reduction of the note, or to purchase its bonds in the open market for subsequent deposit with the R. F. C. as additional security or to use part of the yearly payment requirement for either purpose. The commission's approval was on the condition that only bonds of the company and its subsidiaries as are listed on an exchange may be purchased and that the price at which the purchased bonds are accepted by the R. F. C. for deposit shall not exceed the



maximum market quotations for the bonds on the date purchased.

**KANSAS CITY SOUTHERN.—Notes.**—The final step in the unification of this company and the Louisiana & Arkansas was authorized by Division 4 of the Interstate Commerce Commission on September 19, when it granted permission to the K. C. S. to issue \$2,565,000 of secured serial notes. The proceeds of the notes, together with \$150,000 will be used to purchase 60,000 shares of L. & A. six per cent cumulative prior preferred stock at \$45.25 a share.

**NEW YORK, NEW HAVEN & HARTFORD-NEW YORK CONNECTING.—Joint Operation.**—Division 4 of the Interstate Commerce Commission has authorized the New York Connecting to continue operation under trackage rights over the line of the Long Island between Fresh Pond Junction, N. Y., and Bay Ridge. It has at the same time authorized the New Haven to continue operation over lines of the New York Connecting between Port Morris Junction, N. Y., and Woodside Avenue and over the lines of the Pennsylvania Tunnel & Terminal and through Pennsylvania Station in New York City.

**NORFOLK & PORTSMOUTH BELT.—Notes.**—This company's \$700,000 of 1½ per cent promissory notes, which were described in last week's issue, will be dated September 1, 1939, will bear interest at the rate of 1½ per cent, payable semi-annually on March 1 and September 1, and will mature in 10 equal annual installments of \$70,000 in each of the years 1940 to 1949, inclusive. The company retains the option, on any interest payment date, to redeem the notes, in whole or in part, at 102 per cent of par and accrued interest.

**NORFOLK SOUTHERN.—Equipment Trust Certificates.**—This company has been authorized by Division 4 of the Interstate Commerce Commission to assume liability for \$607,000 of three per cent equipment trust certificates, maturing in 30 semi-annual installments of \$21,000 on May 1, and November 1, from May 1, 1940, to May 1, 1943, inclusive, and of \$20,000 on November 1, and May 1, from November 1, 1943, to November 1, 1954 inclusive. The certificates will be sold at par and accrued dividends to the Reconstruction Finance Corporation. Authority for the sale of the R. F. C. was granted at the same time that the commission approved the equipment trust application.

**ST. LOUIS-SAN FRANCISCO.—Abandonment.**—This company has been authorized by Division 4 of the Interstate Commerce Commission to abandon a branch line extending from Mingo, Mo., westerly to Williamsville, 24.3 miles.

**SEABOARD AIR LINE.—Equipment Trust Certificates and R. F. C. Financing.**—This company has asked the Interstate Commerce Commission for approval of an arrangement whereby the Reconstruction Finance Corporation would assist the carrier in the purchase of new equipment costing \$2,639,552. In the application the Seaboard asked that R. F. C. aid be granted in either one of three ways. First, by the

purchase by the R. F. C. at par of \$2,320,000 of Seaboard three per cent or less equipment trust certificates for its own account. Secondly, the road proposed that the R. F. C. purchase for re-sale all or any part of the \$2,320,000; while a third alternative would be for the R. F. C. to guarantee the issue. In either case the company will pay 10 per cent of the purchase price in cash.

**SOUTHERN PACIFIC.—Abandonment.**—This company has been authorized by Division 4 of the Interstate Commerce Commission to abandon a portion of a branch line extending from Buchli, Calif., to West Napa, 6.4 miles.

**SOUTHERN PACIFIC.—Abandonment.**—This company has been authorized by Division 4 of the Interstate Commerce Commission to abandon a portion of its so-called Los Alamitos branch extending from milepost 518.576 to the end of the line, approximately one-half mile, all in Los Alamitos, Calif.

**TOLEDO & INDIANA.—Abandonment.**—This company has been authorized by Division 4 of the Interstate Commerce Commission to abandon, as to interstate and foreign commerce, its entire line extending from Vulcan, Ohio, westerly to Bryan, 51.7 miles.

**TONOPAH & TIDEWATER.—Abandonment.**—This company would be authorized to abandon the operation of its line extending from Crucero, Calif., to Beatty, Nev., 143.4 miles, if Division 4 of the Interstate Commerce Commission adopts a proposed report of its examiner, W. J. Schutrumpf.

**WABASH.—Receiver Asked.**—The Irving Trust Company, New York, has filed suit in the federal district court at Detroit, Mich., on September 15, asking for an accounting of assets, for the appointment of a receiver with power to act for the bondholders and for an injunction to restrain the company from disposing of its properties pending a hearing. The trust company said that the property allegedly acquired by the Wabash since the issuance of \$3,000,000 in mortgage bonds in 1901, should be made subject to the lien. The bonds bear 4 per cent interest and are due in 1941. They were issued for the Toledo-Chicago division of the road.

**YAZOO & MISSISSIPPI VALLEY.—Abandonment.**—This company has asked the Interstate Commerce Commission for authority to abandon (1) a line extending from Greenville, Miss., to Riverside Junction, 35.8 miles and (2) the Glen Allen branch extending westerly from Hampton, Miss., to Glen Allen, two miles.

#### Average Prices of Stocks and Bonds

	Sept. 19	Last week	Last year
Average price of 20 representative railway stocks..	32.98	33.54	26.08
Average price of 20 representative railway bonds..	59.26	59.83	57.34

#### Dividends Declared

Joliet & Chicago.—\$1.75, quarterly, payable October 2 to holders of record September 20.  
 Mahoning Coal R. R.—\$7.50, payable October 2 to holders of record September 25.  
 Virginian.—6 Per Cent Preferred, \$1.50, quarterly, payable November 1 to holders of record October 21.

## Railway Officers

### EXECUTIVE

**A. J. Chester**, general manager of the Texas & Pacific, with headquarters at Dallas, Tex., has been elected vice-president in charge of operation, with the same headquarters, succeeding **James Alexander Somerville**, whose death on July 7 was announced in the *Railway Age* of July 15.

**A. Syverson**, assistant general manager of the Lake Superior & Ishpeming, has been elected vice-president and general manager, with headquarters as before at Marquette, Mich., succeeding **H. R. Harris**, whose death on June 5 was announced in the *Railway Age* of June 10. Mr. Syverson entered railway service during the summer of 1892 as a station helper on the Chicago & North Western, later becoming a telegraph operator, train dispatcher, chief train dispatcher and trainmaster. In February, 1913, he went with the Ann Arbor as superintendent, and on April 20, 1920, he went with the Lake Superior & Ishpeming as superintendent. Mr. Syverson was promoted to assistant general manager, with headquarters at Marquette, Mich., in February, 1929, and held that position until his recent promotion.

**M. F. Stokes**, whose election as president and general manager of the Chicago & Western Indiana and the Belt Railway Company of Chicago, with headquarters at Chicago, was announced in the *Railway Age* of September 16, was born at Pitts-



M. F. Stokes

burgh, Pa., on October 11, 1883, and attended the Chicago Business College for two years. He entered railway service in June, 1900, as a stenographer on the Illinois Central at Chicago, and later served in various clerical capacities in the transportation department, advancing to assistant chief clerk to the superintendent and assistant chief clerk to the general superintendent. In February, 1907, he went with the Missouri Pacific as chief clerk in the offices of the trainmaster and chief dispatcher at DeSoto, Mo. Mr. Stokes re-

Continued on next left-hand page



Six 4-8-4 streamlined passenger locomotives have been recently delivered by Lima to the Grand Trunk Western.



Four heavy 4-8-4 type locomotives, designed to meet the requirements of high capacity, high speed freight service, recently delivered to the Soo Line by Lima.



Twenty streamlined high speed passenger locomotives have been delivered by Lima to the Southern Pacific Lines to haul the "Daylight"

**A** FEW of the high speed, high powered Lima built locomotives recently put in service. Thanks to the methods and machinery that have made Lima famous for quality, these locomotives have low maintenance and high availability. Lima locomotives, through their dependability and economy of maintenance, have made ...and are making... Lima's Reputation.



**LIMA LOCOMOTIVE WORKS, INCORPORATED, LIMA, OHIO**



turned to the Illinois Central as chief clerk in the office of the superintendent of terminals at Chicago and in April, 1913, he went with the Belt Railway Company of Chicago as chief clerk to the general superintendent. Two years later he was promoted to trainmaster with headquarters at Clearing, Ill., and in 1916, he was appointed chief clerk to the president of the Chicago & Western Indiana and the Belt Railway Company of Chicago, a position corresponding to that of assistant to the president on other roads. During the period of government control of the railroads, he continued as chief clerk to the federal manager of both roads and resumed his former title as chief clerk to the president in 1920. In April, 1928, he was advanced to assistant secretary and the following year he was elected secretary. He was elected secretary and treasurer in September, 1935, holding that position until his recent promotion. During the period that Mr. Stokes served as secretary and treasurer, he continued with his former duties corresponding to those of assistant to the president.

**Charles H. Buford**, general manager of the Western lines of the Chicago, Milwaukee, St. Paul & Pacific, with headquarters at Seattle, Wash., has been elected vice-president in charge of operations and maintenance of the Association of American Railroads, with headquarters at Washington, D. C., succeeding **James Wiley King**, whose death on June 12 was announced in the *Railway Age* of June 17.

Mr. Buford graduated in civil engineering from the University of Arkansas in 1907 and immediately entered railway service as an instrumentman in the engineering department of the Milwaukee. In 1908, he was appointed a draftsman in the bridge department in the general offices at Chicago. In 1910, he went with the Atchafalaya, Topeka & Santa Fe as a designing and estimating engineer in the office of the chief engineer at Chicago, and in 1913, he returned to the Milwaukee as assistant engineer on the Chicago track elevation work and was subsequently promoted to engineer of track elevation at Chicago. In April, 1917, he was promoted to trainmaster of the Sioux City and Dakota di-



**Charles H. Buford**

vision, with headquarters at Sioux City, Iowa, and in February, 1918, he was transferred to the LaCrosse division, with head-

quarters at Milwaukee, Wis. Mr. Buford was advanced to superintendent of the Wisconsin Valley division, with headquarters at Wausau, Wis., in July, 1918, and the following November was transferred to the Superior division, with headquarters at Green Bay, Wis. In August, 1919, he was transferred to the Sioux City and Dakota division, with headquarters at Sioux City, and in November, 1921, he was transferred to the Terre Haute division, with headquarters at Terre Haute, Ind. He was promoted to general superintendent, Southern district, with headquarters at Chicago, in October, 1924, and on November 15, 1925, he was further advanced to assistant general manager of the Eastern lines, with the same headquarters. Mr. Buford was promoted to general manager of the Western lines, with headquarters at Seattle on November 1, 1927, holding that position until his recent appointment.

### OPERATING

**Charles Edson Adams**, superintendent of the Pittsburgh division of the Pennsylvania, with headquarters at Pittsburgh, Pa.,



**Charles Edson Adams**

has been appointed superintendent of the Long Island at Jamaica, New York, succeeding **Herman T. Frushour**, who has been promoted to general superintendent of the Western Pennsylvania division of the Pennsylvania, with headquarters at Pittsburgh. Mr. Frushour succeeds **R. H. Flinn**, who has been granted leave of absence account of ill health. **D. K. Chase**, superintendent of the Eastern division at Pittsburgh, has been transferred to the Pittsburgh division in the same capacity, succeeding Mr. Adams. **F. R. Rex**, superintendent of the St. Louis division at Terre Haute, Ind., has been transferred to the Eastern division, succeeding Mr. Chase. **J. E. Vandling**, division engineer at Pittsburgh, has been appointed superintendent, Erie & Ashtabula division, with headquarters at New Castle, Pa., succeeding **N. M. Lawrence**, who replaces Mr. Rex.

Mr. Adams was born at Kokomo, Ind., and served in the operating department of the Pennsylvania during vacations while attending school since the age of 16. After completing his engineering studies at Ohio State University in 1912, Mr. Adams was

employed as an assistant on the engineering staff of the Richmond division, later holding similar positions on the Cincinnati



**Herman T. Frushour**

division, the Cincinnati, Lebanon & Northern and the Akron division. In May, 1920, he was appointed supervisor at Akron; in October, 1922, he was transferred in a similar capacity to the Buffalo division at East Aurora, N. Y.; and in April, 1926, to the Eastern division at Rochester, Pa. In January, 1928, Mr. Adams was appointed division engineer on the St. Louis division at Terre Haute, Ind., and in November of the same year he was transferred in the same capacity to the Philadelphia Terminal division. After serving from December, 1929, until June, 1932, as general agent and superintendent at Grand Rapids, Mich., he became superintendent of the Toledo division, which position he held until July, 1933, when he was transferred to the Panhandle division in the same capacity. Mr. Adams was appointed superintendent of the Pittsburgh division on February 1, 1937, the position he held until his recent appointment.

Mr. Frushour was born on February 17, 1882, at Logansport, Ind., and was graduated from Purdue University. During the summer recesses while a student at Purdue, Mr. Frushour secured temporary employment with the Pennsylvania, as rodman and locomotive fireman. In September, 1902, after graduation, he entered this road's service as rodman on the Logansport division and was advanced to assistant on an engineering corps in May, 1907. Mr. Frushour was appointed division engineer on the Cleveland and Pittsburgh division (now called the Cleveland division) in January, 1927, and became superintendent of the Monongahela division at Uniontown, Pa., in July, 1928. He was transferred in the same capacity to the Erie & Ashtabula division at New Castle, Pa., in June, 1929; to the St. Louis division at Terre Haute, Ind., in September, 1932; and to the Eastern division at Pittsburgh, in July, 1933. Mr. Frushour became superintendent of the Long Island at Jamaica, N. Y., in November, 1935.

**Norman A. Ryan**, assistant general manager of the Eastern lines of the Chicago, Milwaukee, St. Paul & Pacific, with headquarters at Chicago, has been promoted, effective October 1, to general man-

REPRINTED FROM THE  
NEW YORK HERALD-TRIBUNE  
JULY 30, 1939

## Central Offers New Pacemaker;

### High-Speed Trains Complete Inaugural Trips to Chicago in Railroads' Answer to Bus Competition in Passenger Field

By a Staff Correspondent

CHICAGO, July 29.—Pulling into the La Salle Street Station fifteen minutes ahead of time and less than one hour behind the Century which left the Grand Central at approximately the same time, the New York Central de luxe coach flyer Pacemaker completed her initial trip today.

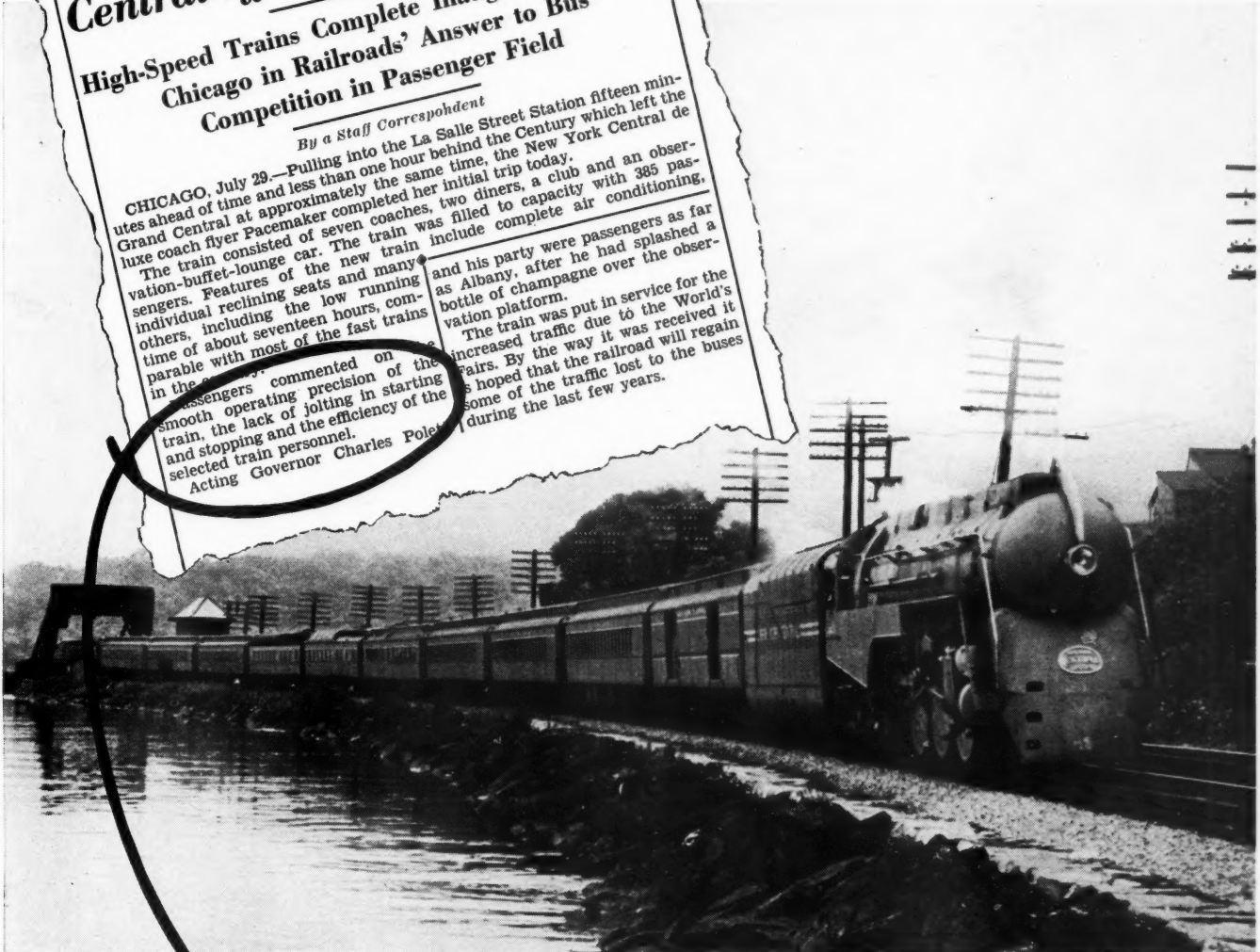
The train consisted of seven coaches, two diners, a club and an observation-buffet-lounge car. The train was filled to capacity with 385 passengers. Features of the new train include complete air conditioning, individual reclining seats and many others, including the low running time of about seventeen hours, comparable with most of the fast trains in the country.

Passengers commented on the smooth operating precision of the train, the lack of jolting in starting and stopping and the efficiency of the selected train personnel.

Acting Governor Charles P. ...

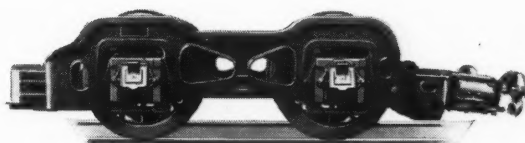
and his party were passengers as far as Albany, after he had splashed a bottle of champagne over the observation platform.

The train was put in service for the increased traffic due to the World's Fair. By the way it was received it was hoped that the railroad will regain some of the traffic lost to the buses during the last few years.



"Passengers commented on the smooth operating precision of the train, the lack of jolting in starting and stopping and the efficiency of the selected train personnel."

The Pacemaker is hauled by Booster\*-equipped locomotives.



\*Trademark Registered United States Patent Office



**FRANKLIN RAILWAY SUPPLY COMPANY, INC.**

NEW YORK  
CHICAGO  
MONTREAL

September 23, 1939



ager of the Western lines, with headquarters at Seattle, Wash., succeeding **Charles H. Buford**, whose appointment as vice-president in charge of operations and maintenance of the Association of American Railroads, with headquarters at Washington, D. C., is announced elsewhere in



**Norman A. Ryan**

these columns. Mr. Ryan was born at Superior, Neb., on November 5, 1891, and entered railway service at the age of 18 as a clerk and stenographer in the operating department of the Chicago, Burlington & Quincy. Three years later he went with the Southern Pacific as a clerk in the operating department at Sacramento, Cal., and in 1913, he returned to the C. B. & Q., where he served at various points as a clerk until 1917. In that year Mr. Ryan joined the operating department of the Los Angeles & Salt Lake (part of the Union Pacific) at Los Angeles, Cal., resigning a year later to enter the United States Army, where he subsequently became a first lieutenant in the railway transportation corps of the A. E. F. In 1919, Mr. Ryan returned to railway service, becoming connected with the staff of the general superintendent of the Milwaukee at Chicago, and in 1920, he was appointed trainmaster of the Milwaukee (Wis.) terminals. In 1921, he was transferred to the Terre Haute division and two years later he was promoted to assistant division superintendent at Terre Haute, Ind. In 1924, he was advanced to superintendent at Terre Haute and in 1927, he was transferred to the Milwaukee terminals, later becoming superintendent of the consolidated Milwaukee division, comprised of three former divisions. Mr. Ryan was further advanced to assistant general manager of the Eastern lines, with headquarters at Chicago, on May 1, 1932. When discharged from active duty in the U. S. Army, Mr. Ryan was commissioned major, Engineering Corps, Reserve and served as commanding officer, 609th Engineers Railway Battalion, Reserve. In August, 1939, he was appointed chief, transportation section, steam railroads, Theatre of Operations, Engineers Corps.

### TRAFFIC

The following changes have taken place in the traffic departments of the Kansas City Southern and the Louisiana & Arkan-

sas as a result of consolidation. The new positions are joint positions for both roads. **Johnson O. Couch**, assistant to vice-president of the Kansas City Southern, has been appointed assistant vice-president, with headquarters as before at Kansas City, Mo. **J. R. Mills**, freight traffic manager of the K. C. S., has been appointed assistant to vice-president, with headquarters as before at Kansas City. **F. A. Key, Jr.**, traffic manager of the L. & A., has been appointed southern district traffic manager, with headquarters as before at Shreveport, La., and **G. H. Dougherty**, general agent for the K. C. S. at Dallas, Tex., has been promoted to assistant southern district traffic manager at Shreveport. **C. P. Hoch**, assistant freight traffic manager of the K. C. S. at Kansas City, has been appointed eastern district traffic manager, with headquarters at New York. **E. J. Glaeser**, general agent for the K. C. S. at New York, has been promoted to district traffic manager, with headquarters at Kansas City, and **H. B. Halsted**, general agent for the K. C. S. at Detroit, Mich., has been promoted to district traffic manager, with headquarters at Chicago. **J. Fiedler** has been appointed general agent at Atlanta, Ga., a new position. **H. R. Whiting**, executive general agent on the L. & A. at Dallas, Tex., has been appointed district freight agent at that point, and **W. D. Grubb**, general freight agent on the L. & A. at Dallas, has been appointed general agent at that point. **R. E. Carter**, general agent for the L. & A. at Houston, continues in that position, and **H. H. Scott**, general agent for the K. C. S. at Houston, has been appointed assistant general agent at that point. **F. W. Danke**, commercial agent for the K. C. S. at Houston, has been promoted to general agent at Memphis, Tenn., a new position. **E. A. Montgomery**, assistant general freight agent on the L. & A. at New Orleans, La., has been appointed assistant general agent at that point, and **F. H. Strong**, general agent of the K. C. S. at New Orleans, continues in that position. **G. E. Condroy**, commercial agent for the K. C. S. at San Antonio, Tex., has been promoted to general agent at that point, a change in title. **E. B. Hickman**, assistant general freight and passenger agent on the L. & A. at Shreveport, has been appointed general agent at that point, succeeding **W. D. Burch**, general agent on the K. C. S. and **E. O. Sikes**, general agent on the L. & A. Mr. Burch has been appointed general agent at Washington, D. C., a newly created position, and Mr. Sikes has been appointed assistant general agent at Shreveport. **L. Rickerson** has been appointed general agent at Winnfield, La., and **T. F. Brennan** has been appointed general agent at Cincinnati, Ohio, two newly created positions. **C. S. Cox**, general agent on the K. C. S. at Joplin, Mo., continues in that position and **J. A. Christian**, general agent on the K. C. S. at Tulsa, Okla., has been appointed assistant general agent at Joplin. **Joe Hardin**, commercial agent at Tulsa, has been promoted to general agent at that point succeeding Mr. Christian. **P. C. Lang**, general northwestern agent of the L. & A. at Kansas City, has been appointed general agent at that point suc-

ceeding **J. F. Griffiths**, general agent of the K. C. S. at Kansas City, who has been appointed general agent at San Francisco, Cal., succeeding both **H. J. Snyder**, general agent of the K. C. S. at San Francisco, and **W. C. Connor**, Pacific Coast agent of the L. & A. **C. W. Wheeler**, general agent for the K. C. S. at St. Louis, Mo., continues in that capacity and **R. R. Feickert**, general agent for the L. & A. at St. Louis, has been appointed general agent at Minneapolis, Minn., succeeding **E. C. Worthley**, general agent for the K. C. S. at that point. **P. C. Brown**, commercial agent for the K. C. S. at Seattle, Wash., has been promoted to general agent at that point, a change in title. **G. J. Wadlinger**, general agent for the K. C. S. at Pittsburgh, Pa., continues in that capacity, and **William J. Seibert**, general agent for the L. & A. at Pittsburgh, has been appointed general agent at Cleveland, Ohio, a newly created position. **H. H. Jordan**, general agent for the L. & A. at Chicago, continues in that capacity, and **Henry Brown**, general agent for the K. C. S. at Chicago, has been appointed general agent at Milwaukee, Wis., a newly created position. Other general agents of the K. C. S. and the L. & A. continue with the same headquarters.

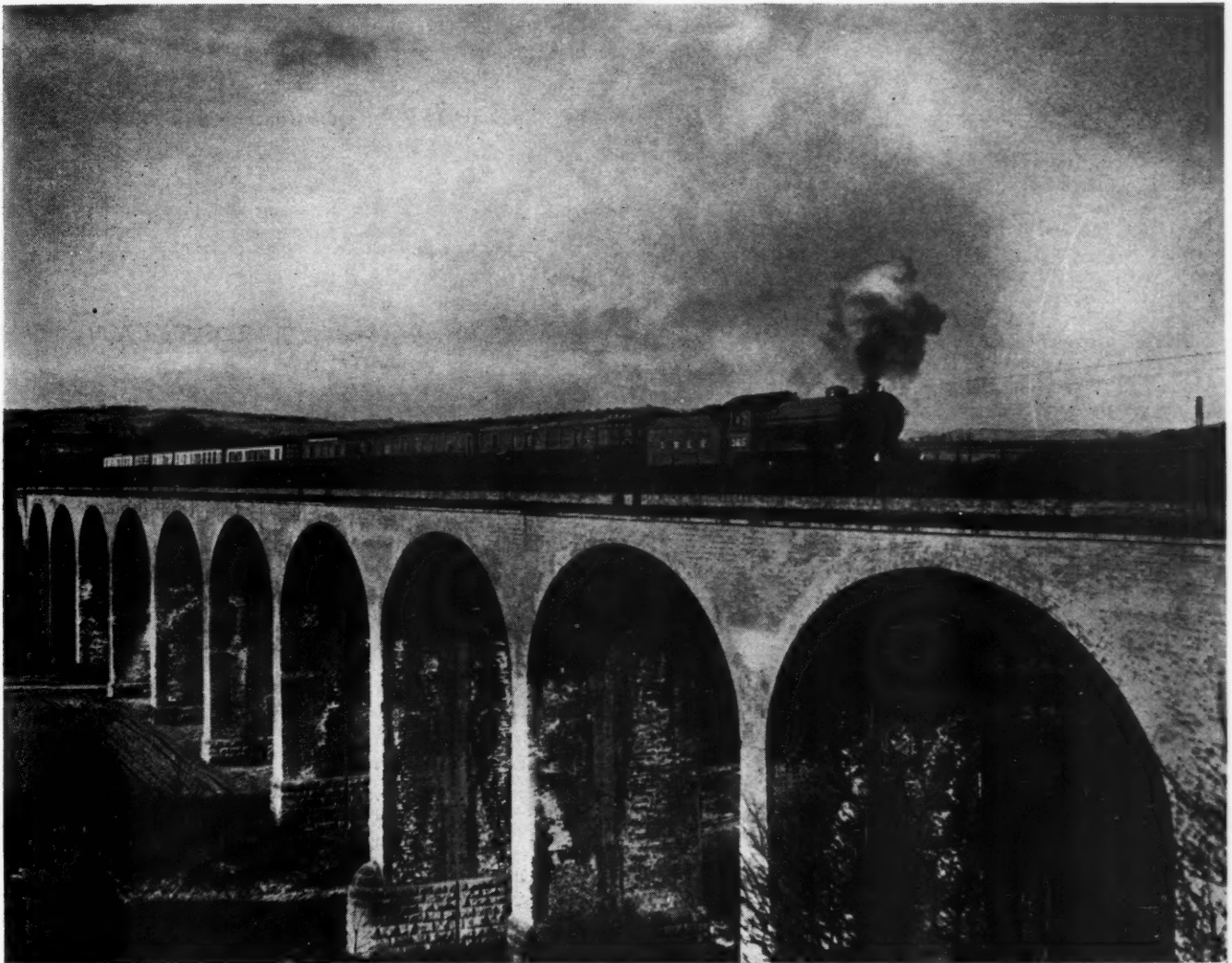
**Clarence C. Thompson**, division passenger agent on the Atchison, Topeka & Santa Fe at Chicago, has been promoted, effective October 1, to general passenger agent, with headquarters at Los Angeles, Cal., a newly created position. Mr. Thompson was born in Chicago on July 14, 1887, and entered railway service on the Santa Fe in September, 1914, as a ticket seller at



**Clarence C. Thompson**

Chicago. In November, 1918, he was promoted to assistant agent at Chicago, and in 1920, he was appointed assistant ticket agent. Mr. Thompson was promoted to city passenger agent in September, 1920, and in June, 1936, he was advanced to division passenger agent at Chicago.

**Glenn Eddie**, general passenger agent on the Atchison, Topeka & Santa Fe, with headquarters at Topeka, Kan., has been promoted to assistant passenger traffic manager, with headquarters at Chicago, effective October 1. Mr. Eddie will succeed to the duties of **James R. Moriarity**, who will continue as assistant passenger



**CROXDALE VIADUCT**  
**ENGLAND**

This viaduct, which is situated on the York and Newcastle trunk route of the London & North Eastern Railway of England, carries the double track over the River Wear near Croxdale depot. Completed in 1872, this viaduct has a length of 792 ft., and a breadth, between the parapets of its eleven arches, of 23½ ft. The two arches directly over the river have a height of

75 ft. from the river bed to their under side \* \* \* While the basic design of the Security Sectional Arch, the first practical firebox arch, remains unchanged, it has been continuously developed to keep pace with present day railroad demands, and is today an essential factor in the economical operation of modern steam motive power.

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Specialists*



traffic manager at Chicago, replacing **A. P. Morison**, who will retire on October 1. **Harry C. Vincent**, assistant general passenger agent at Los Angeles, Cal., has been promoted to general passenger agent at Topeka, to relieve Mr. Eddie.

Mr. Eddie entered the service of the Santa Fe in April, 1903, as a ticket clerk at Hutchinson, Kan. During the next eight years he sold tickets at Chicago, Los Angeles, Cal., Denver, Colo., and Oklahoma City, Okla., and in 1911, he was appointed traveling passenger agent at Topeka. Mr. Eddie was promoted to division passenger agent at Oklahoma City in March, 1920, and on December 1, 1937, he was advanced to general passenger agent at Topeka.

Mr. Morison was born at Rossie Farm, Dunning, Scotland, on August 6, 1868, and entered the service of the Santa Fe in 1889, as stenographer to the treasurer at Topeka. He saw service during the construction of the Kansas City-Chicago line of the Santa Fe and numerous branch lines in Kansas, later joining the building department forces in Topeka. He then went to the treasury department as secretary to the treasurer at Topeka, later becoming a



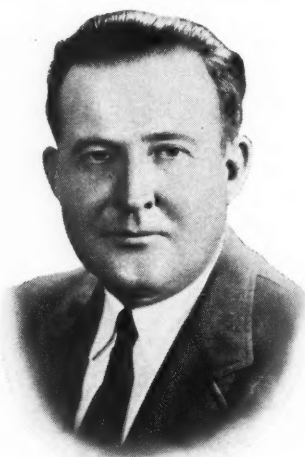
Glenn Eddie

stenographer in the passenger department. On July 1, 1895, he went with the Michigan Central as chief rate clerk in Chicago and on February 1, 1902, he returned to the Santa Fe as chief clerk to the passenger traffic manager at Chicago. Seven years later he was promoted to assistant general passenger agent, with the same headquarters, and in 1920, he was advanced to assistant passenger traffic manager, the position he now holds.

**Warren H. Turner**, assistant to vice-president on the Atchison, Topeka & Santa Fe, with headquarters at Chicago, has been promoted to general freight agent, with headquarters at Topeka, Kan., succeeding **J. C. Burnett**, who will retire on October 1, and **Clark Davis**, general freight agent, with headquarters at Chicago, has been promoted to assistant to vice-president to succeed Mr. Turner. **E. M. Fogarty**, assistant general freight agent at Topeka, has been promoted to general freight agent at Chicago, to replace Clark Davis, and **C. L. Davis**, division freight agent at Joplin, Mo., has been advanced to assistant general freight agent at Topeka to relieve

Mr. Fogarty. The above appointments are all effective on October 1.

Mr. Turner was born on June 21, 1891, and entered the service of the Santa Fe at



Warren H. Turner

Topeka in 1907 as an office boy in the passenger department, transferring two years later to the freight department as a stenographer. After serving in several capacities in that office, he was promoted to division freight agent at Atchison, Kan., in 1920. He later served successively in this capacity at Topeka, Wichita, Kan., and Kansas City, Mo., until March 1, 1938, when he was advanced to assistant to vice-president, with headquarters at Chicago.

Mr. Burnett entered railway service on the Santa Fe during summer vacations between 1885 and 1889, while attending school in Topeka. He became regularly employed on September 1, 1889, as a stenographer in the superintendent's office at Newton, Kan., returning to Topeka the following January. In 1892, he was transferred to Wichita, Kan., as claim and rate clerk, and was later appointed soliciting freight agent. Mr. Burnett was promoted to traveling freight agent at Denver, Colo., in 1893. In 1900, he was promoted to commercial agent at Colorado Springs, Colo., and later to general agent at Pueblo, Colo. In 1904, he returned to Kansas as division freight agent at Newton, and in 1905, he was transferred to Topeka. Mr. Burnett was advanced to assistant general freight agent at that point in 1910, and to general freight agent in 1927.

**Clark Davis**, general freight agent of the Atchison Topeka & Santa Fe at Chicago, has been appointed assistant to the traffic vice-president, to succeed **Warren Turner** who has been appointed general freight agent at Topeka, Kan., and has been succeeded by **Edward M. Fogarty**, assistant general freight agent at Topeka.

## ENGINEERING AND SIGNALING

**I. L. Pyle**, assistant chief engineer of the Chesapeake & Ohio, with headquarters at Richmond, Va., has been appointed chief engineer, succeeding **Charles W. Johns**, deceased.

**R. L. Schmid**, assistant to general manager of the Nashville, Chattanooga & St.

Louis, has been promoted to principal assistant engineer, with headquarters as before at Nashville, Tenn., a newly created position, and **Otto Joslin**, bridge and building supervisor, has been promoted to senior assistant engineer at Nashville, succeeding **Charles H. Brodbeck**, who has been appointed division engineer of the Nashville and P & M divisions, with headquarters at Nashville, replacing **John M. Ryan**, whose promotion to assistant to general manager at Nashville, relieving Mr. Schmid, is announced elsewhere in these columns.

## MECHANICAL

**Thomas F. Powers**, assistant superintendent of motive power and machinery on the Chicago & North Western, with headquarters at Chicago, has been appointed superintendent of motive power of the Northern district, a new position, with jurisdiction over locomotive and car matters on that district and with headquarters as before at Chicago, and **John C. Stump**, assistant superintendent of motive power and machinery, with headquarters at Chicago, has been appointed superintendent of motive power of the Western district, a new position, with jurisdiction over locomotive and car matters on that district, and with headquarters as before at Chicago.

## PURCHASES AND STORES

**George E. Scott**, purchasing agent of the Missouri-Kansas-Texas, has resigned to accept the newly-created position of vice-president and assistant sales manager of the Scullin Steel Company, St. Louis, Mo. A photograph and sketch of Mr. Scott appear elsewhere in this issue.

## OBITUARY

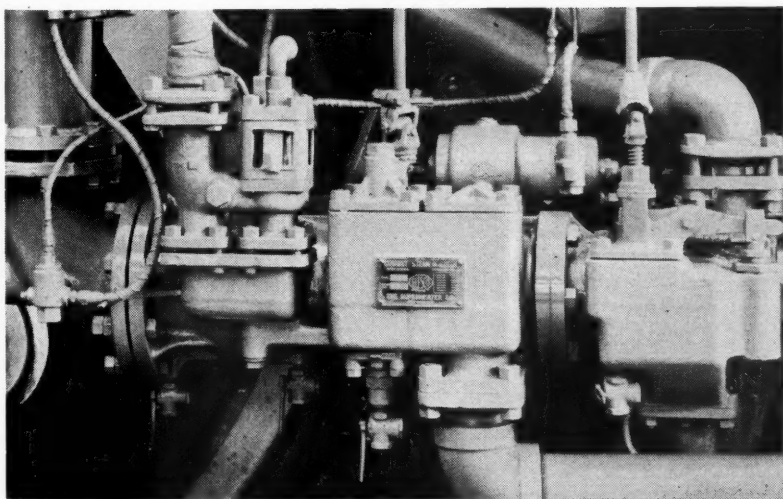
**Homer A. Bradt**, general agent for the Chicago, Burlington & Quincy at Spokane, Wash., died in a hospital in that city on September 4.

**Charles W. Johns**, chief engineer of the Chesapeake & Ohio, with headquarters at Richmond, Va., died on September 16 at Clifton Forge, Va., from a cerebral hemorrhage. He was 63 years old.

**H. M. Swope**, division engineer on the Atchison, Topeka & Santa Fe, with headquarters at Emporia, Kan., died at the Santa Fe hospital in Topeka, Kan., on September 13.

**Robert E. Wiley**, general attorney on the Missouri Pacific, with headquarters at Little Rock, Ark., died on August 10, while on a vacation cruise aboard the S. S. Columbus. Mr. Wiley was born in Arkansas County, Ark., in 1872, and graduated in law from George Washington University, Washington, D. C. He had practiced law in Little Rock since 1897. In 1912, he was appointed assistant general attorney for the Missouri Pacific lines in Arkansas, and in January, 1930, he was promoted to general attorney, with headquarters as before at Little Rock, the position he held at the time of his death.

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# Operating Revenues and Operating Expenses of Class I Steam Railways

Compiled from 135 Monthly Reports of Revenues and Expenses Representing 139 Class I Steam Railways

(Switching and Terminal Companies Not Included)

FOR THE MONTH OF JULY, 1939 AND 1938

Item	United States		Eastern District		Southern District		Western District	
	1939	1938	1939	1938	1939	1938	1939	1938
Miles of road operated at close of month .....	233,396	234,295	57,551	57,812	44,474	44,618	131,371	131,865
Revenues:								
Freight .....	\$265,086,133	\$238,131,924	\$102,885,983	\$87,828,391	\$52,560,889	\$45,117,250	\$109,639,261	\$105,186,283
Passenger .....	41,269,284	37,999,753	22,407,073	20,564,538	4,183,298	4,033,035	14,678,913	13,402,180
Mail .....	7,717,999	7,456,228	2,917,583	2,830,883	1,325,127	1,295,231	3,475,289	3,330,114
Express .....	2,640,025	2,311,428	1,056,481	781,799	350,596	303,709	1,232,948	1,225,920
All other operating revenues .....	15,722,411	13,690,393	7,479,939	6,488,462	1,697,832	1,541,312	6,544,640	5,660,619
Railway operating revenues .....	332,435,852	299,589,726	136,747,059	118,494,073	60,117,742	52,290,537	135,571,051	128,805,116
Expenses:								
Maintenance of way and structures .....	43,186,401	36,955,098	15,516,049	12,509,102	6,960,760	6,226,644	20,709,592	18,219,352
Maintenance of equipment .....	61,039,744	52,995,172	26,190,066	21,143,960	11,905,037	10,369,101	22,944,641	21,482,111
Traffic .....	8,940,800	8,575,040	3,270,515	3,195,511	1,593,568	1,549,571	4,076,717	3,829,958
Transportation—Rail line .....	114,878,296	109,930,206	50,847,553	47,509,692	18,831,619	17,784,076	45,199,124	44,636,438
Transportation—Water line .....	391,658	365,133	.....	.....	.....	.....	391,658	365,133
Miscellaneous operations .....	3,492,678	3,206,473	1,415,897	1,397,424	307,203	293,200	1,769,578	1,515,849
General .....	10,493,507	10,432,965	4,170,508	4,195,602	1,997,677	1,954,625	4,325,322	4,282,738
Transportation for investment—Cr. ....	460,993	293,265	93,554	53,335	51,962	67,252	315,477	172,688
Railway operating expenses .....	241,962,091	222,166,822	101,317,034	89,897,956	41,543,902	38,109,975	99,101,155	94,158,891
Net revenue from railway operations .....	90,473,761	77,422,904	35,430,025	28,596,117	18,573,840	14,180,562	36,469,896	34,646,225
Railway tax accruals .....	30,013,181	28,035,056	12,865,058	12,063,128	6,051,941	5,287,124	11,096,182	10,684,804
Railway operating income .....	60,460,580	49,387,848	22,564,967	16,532,989	12,521,899	8,893,438	25,373,714	23,961,421
Equipment rents—Dr. balance .....	8,410,229	8,169,153	3,839,824	3,332,726	†34,661	117,348	4,605,066	4,719,079
Joint facility rent—Dr. balance .....	3,038,436	2,787,444	1,644,922	1,486,753	336,879	297,685	1,056,635	1,003,006
Net railway operating income .....	49,011,915	38,431,251	17,080,221	11,713,510	12,219,681	8,478,405	19,712,013	18,239,336
Ratio of expenses to revenues (per cent) .....	72.8	74.2	74.1	75.9	69.1	72.9	73.1	73.1
Depreciation included in operating expenses .....	16,792,733	16,907,191	7,378,319	7,380,802	3,322,429	3,298,579	6,091,985	6,227,810
Pay roll taxes .....	8,697,807	8,130,969	3,704,961	3,348,597	1,468,006	1,410,374	3,524,840	3,371,998
All other taxes .....	21,315,374	19,904,087	9,160,097	8,714,531	4,583,935	3,876,750	7,571,342	7,312,806

## FOR SEVEN MONTHS ENDED WITH JULY, 1939 AND 1938

Miles of road operated at close of month * .....	233,580	234,664	57,596	57,951	44,490	44,705	131,494	132,008
Revenues:								
Freight .....	\$1,718,178,331	\$1,533,866,268	\$706,855,076	\$605,041,720	\$346,317,001	\$314,588,272	\$665,006,254	\$614,236,276
Passenger .....	239,477,676	235,262,206	132,214,456	128,051,449	32,678,724	33,267,254	74,584,496	73,943,503
Mail .....	55,693,880	54,042,012	21,336,692	20,603,509	9,677,364	9,471,387	24,679,824	23,967,116
Express .....	30,499,833	25,064,120	11,861,842	8,515,811	7,125,416	5,410,010	11,512,575	11,138,299
All other operating revenues .....	92,712,688	87,422,160	45,330,962	43,021,164	11,757,603	11,521,196	35,624,123	32,879,800
Railway operating revenues .....	2,136,562,408	1,935,656,766	917,599,028	805,233,653	407,556,108	374,258,119	811,407,272	756,164,994
Expenses:								
Maintenance of way and structures .....	262,500,005	232,540,075	97,815,477	84,346,545	47,173,833	44,313,873	117,510,695	103,879,657
Maintenance of equipment .....	427,265,970	384,675,100	183,419,280	158,381,103	82,212,328	74,769,475	161,634,362	151,524,522
Traffic .....	61,854,227	60,231,648	22,292,987	21,914,365	11,650,143	11,412,739	27,911,097	26,904,544
Transportation—Rail line .....	794,152,272	778,219,579	356,726,176	342,031,764	134,745,944	132,800,348	302,680,152	303,387,467
Transportation—Water line .....	2,797,568	2,772,010	.....	.....	.....	.....	2,797,568	2,772,010
Miscellaneous operations .....	21,502,439	21,858,152	9,191,944	9,713,221	2,856,423	2,833,631	9,454,072	9,311,300
General .....	74,798,669	75,197,402	29,772,731	29,887,146	14,190,838	14,315,917	30,835,100	30,994,339
Transportation for investment—Cr. ....	2,164,896	1,733,047	245,534	335,052	383,075	311,795	1,536,287	1,086,200
Railway operating expenses .....	1,642,706,254	1,553,760,919	698,973,061	645,939,092	292,446,434	280,134,188	651,286,759	627,687,639
Net revenue from railway operations .....	493,856,154	381,895,847	218,625,967	159,294,561	115,109,674	94,123,931	160,120,513	128,477,355
Railway tax accruals .....	201,994,757	196,904,339	86,411,859	83,650,706	40,823,873	38,628,782	74,759,025	74,624,851
Railway operating income .....	291,861,397	184,991,508	132,214,108	75,643,855	74,285,801	55,495,149	85,361,488	53,852,504
Equipment rents—Dr. balance .....	56,401,836	54,807,262	24,412,177	22,662,108	4,503,537	4,853,478	27,486,122	27,291,676
Joint facility rent—Dr. balance .....	20,696,720	20,567,480	11,194,523	10,927,568	2,342,271	2,348,769	7,159,926	7,291,143
Net railway operating income .....	214,762,841	109,616,766	96,607,408	42,054,179	67,439,993	48,292,902	50,715,440	19,269,685
Ratio of expenses to revenues (per cent) .....	76.9	80.3	76.2	80.2	71.8	74.9	80.3	83.0
Depreciation included in operating expenses .....	117,743,416	117,820,733	51,491,732	51,403,224	23,280,842	23,007,379	42,970,842	43,410,130
Pay roll taxes .....	59,424,002	56,751,121	25,364,557	23,806,040	10,508,109	10,190,440	23,551,336	22,754,641
All other taxes .....	142,570,755	140,153,218	61,047,302	59,844,666	30,315,764	28,438,342	51,207,689	51,870,210

\* Represents an average of the mileage reported at the close of each month within the period.

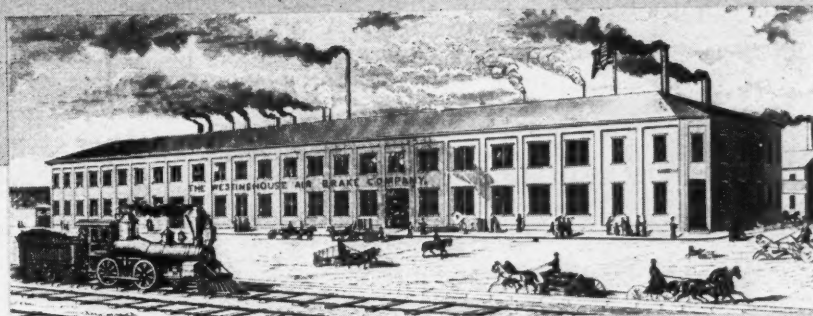
† Decrease, deficit or other reverse items.

Compiled by the Bureau of Statistics, Interstate Commerce Commission. Subject to revision.

Table of Freight Operating Statistics appears on next left-hand page

70


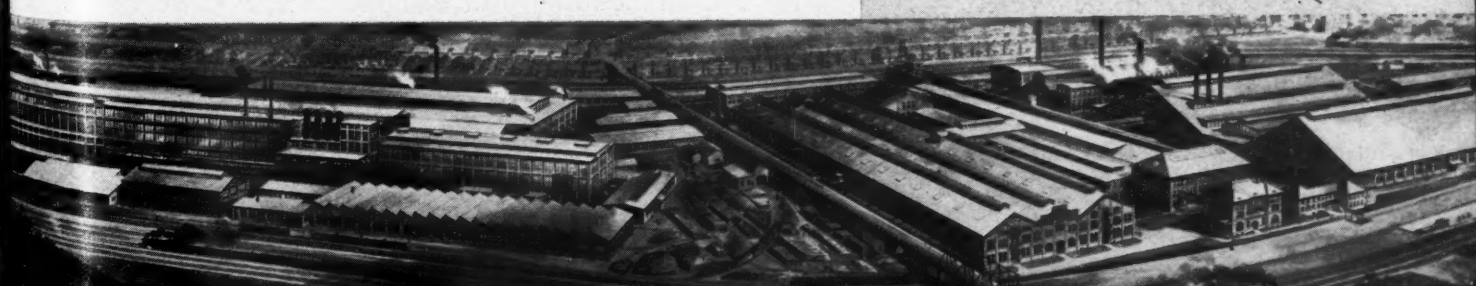
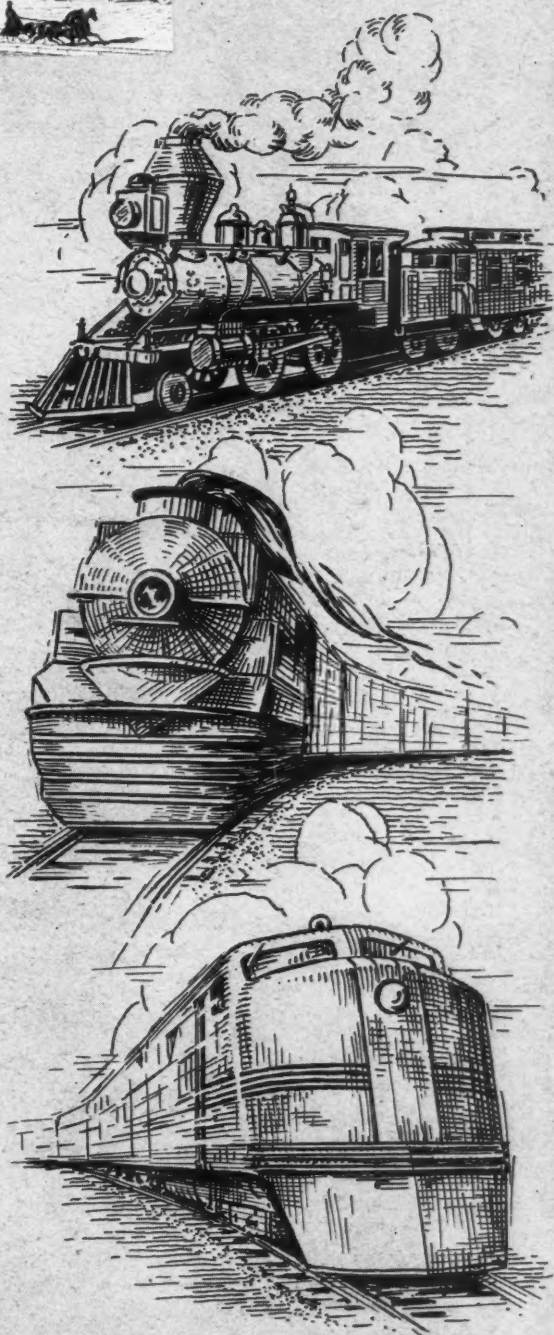
## YEARS of PROGRESS



**P**RACTICAL application of an idea conceived by George Westinghouse that trains could be controlled with brakes actuated by compressed air, gave impetus to railway transportation, and established a growing manufacturing business, for the value of the air brake was quickly recognized. During these seventy years the Westinghouse Air Brake Company has cooperated with the railroads in every effort to increase the scope, utility, and safety of the service they render to travelers and shippers . . . Throughout each successive period of development—from the crude, slow-moving trains of 1869 to the nimble, de luxe streamliners, and fast, heavy freights of today—the products of this company have been permitted to make a material contribution to the speed, reliability, comfort, and security of transportation facilities. On this our seventieth anniversary, we gratefully acknowledge the patronage and good will of our railroad friends, and trust that they may long continue for mutual benefit. . . .

**WESTINGHOUSE AIR BRAKE COMPANY**

General Office and Works: - - - WILMERDING, PENNA.

1869 —————  ————— 1939*Company Chartered September 28, 1869*



## Freight Operating Statistics of Large Steam Railways—Selected Items for the Month of July.

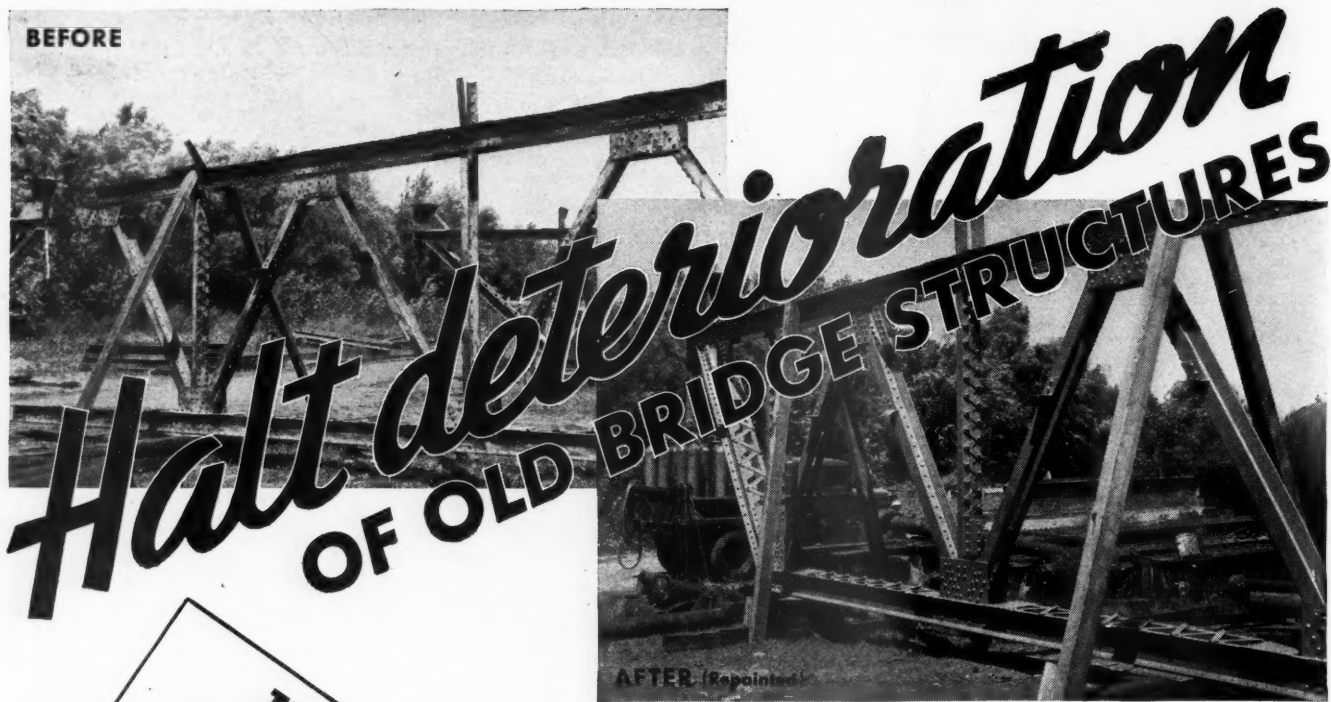
Region, road, and year	Miles of road operated	Train-miles	Locomotive-miles		Car-miles		Ton-miles (thousands)		Number of road locomotives on line				
			Principal and helper	Light	Loaded (thousands)	Per cent loaded	Gross, excluding locomotives and tenders	Net, revenue and non-revenue	Serviceable				
									Not stored	Stored	Un-serviceable		
New England Region:													
Boston & Albany .....	1939	362	117,065	120,916	8,537	2,575	65.2	146,129	50,309	55	9	24	27.3
	1938	374	107,721	111,720	7,924	2,472	67.4	134,382	45,142	50	6	34	37.8
Boston & Maine .....	1939	1,915	249,133	273,572	22,124	8,529	68.8	476,140	174,635	121	4	59	32.1
	1938	1,937	224,532	247,452	20,008	7,881	71.4	422,914	156,051	104	3	133	55.4
N. Y., New Hav. & Hartf. ....	1939	1,840	326,957	406,912	23,952	11,232	64.9	624,448	227,112	171	5	87	32.5
	1938	1,863	290,789	367,965	19,169	9,843	64.4	543,466	190,152	150	20	99	32.7
Great Lakes Region:													
Delaware & Hudson .....	1939	847	209,687	271,817	27,606	7,088	64.2	439,617	203,701	112	60	76	30.6
	1938	830	185,400	238,413	21,113	5,966	66.1	358,551	163,927	84	137	47	17.5
Del., Lack. & Western .....	1939	983	321,180	356,476	47,723	11,012	68.7	630,081	243,575	119	11	77	37.2
	1938	983	287,055	322,524	43,811	9,903	67.9	571,206	217,459	117	18	85	38.6
Erie (incl. Chi. & Erie) .....	1939	2,290	620,349	657,665	35,739	27,205	65.0	1,660,408	590,539	208	28	236	50.0
	1938	2,275	559,935	594,525	33,900	24,437	65.0	1,492,815	527,555	205	50	216	45.9
Grand Trunk Western .....	1939	1,023	203,528	203,810	1,230	5,466	61.0	340,164	117,064	64	8	30	29.4
	1938	1,027	200,945	201,823	1,504	5,151	62.6	312,431	105,870	62	2	45	41.3
Lehigh Valley .....	1939	1,265	272,618	297,628	43,315	10,889	65.7	667,165	270,195	115	..	113	49.6
	1938	1,288	258,642	284,633	40,169	10,287	64.7	649,367	270,038	105	2	130	54.9
New York Central .....	1939	10,609	2,320,815	2,448,779	142,476	76,433	59.8	5,210,535	2,180,042	763	195	473	33.1
	1938	10,651	2,101,553	2,204,899	130,149	68,964	60.8	4,503,248	1,804,911	663	284	548	36.7
N. Y., Chicago & St. Louis .....	1939	1,672	466,497	473,066	5,725	16,764	63.1	1,015,630	365,198	145	11	42	21.2
	1938	1,672	434,645	440,003	5,181	15,270	62.2	930,819	330,031	136	27	35	17.7
Pere Marquette .....	1939	2,081	309,566	314,585	6,098	7,731	60.4	513,104	199,858	102	10	49	30.4
	1938	2,081	261,944	271,326	5,975	6,815	61.3	442,708	169,042	87	25	48	30.0
Pittsburgh & Lake Erie .....	1939	233	62,955	64,180	60	2,880	60.0	253,088	144,383	31	8	36	48.0
	1938	233	50,494	51,555	..	2,062	59.5	176,839	97,125	24	8	39	54.9
Wabash .....	1939	2,397	562,825	572,505	11,740	17,131	62.7	1,052,099	360,659	133	12	125	46.3
	1938	2,421	536,229	550,135	12,041	16,456	65.6	981,319	346,773	130	15	134	48.0
Central Eastern Region:													
Baltimore & Ohio .....	1939	6,278	1,387,579	1,700,930	176,217	44,332	61.2	3,099,294	1,389,307	592	100	526	43.2
	1938	6,314	1,217,898	1,482,725	158,532	38,236	62.0	2,611,670	1,142,332	549	171	550	43.3
Central of New Jersey .....	1939	679	147,809	167,669	27,527	4,605	61.7	318,926	151,296	69	2	84	54.2
	1938	679	135,030	154,973	28,701	4,259	60.2	298,918	139,189	67	5	77	51.7
Chicago & Eastern Illinois .....	1939	927	163,660	163,921	3,065	4,058	67.8	248,298	106,696	51	6	38	40.0
	1938	927	149,772	149,986	2,510	3,436	69.6	202,088	84,365	54	5	49	45.4
Elgin, Joliet & Eastern .....	1939	390	83,898	84,820	937	1,960	59.2	148,509	69,852	52	8	23	27.7
	1938	435	72,830	73,471	644	1,661	59.4	124,784	57,961	47	7	29	34.9
Long Island .....	1939	379	23,288	24,282	16,385	240	51.3	18,634	7,225	33	4	11	22.9
	1938	390	23,846	24,476	14,132	217	49.9	16,919	6,312	27	11	9	19.1
Pennsylvania System .....	1939	9,967	2,511,350	3,034,188	352,602	96,916	61.4	6,584,814	2,851,615	1,120	89	1,085	47.3
	1938	10,021	2,250,727	2,699,146	284,432	85,984	61.6	5,733,951	2,437,927	1,054	430	918	38.2
Reading .....	1939	1,442	362,739	398,473	47,838	10,505	61.0	757,160	361,206	182	14	170	46.4
	1938	1,444	315,580	350,213	44,118	9,021	60.3	645,185	299,503	178	35	141	39.8
Pocahontas Region:													
Chesapeake & Ohio .....	1939	3,055	839,668	877,796	39,493	39,222	55.5	3,375,694	1,850,021	352	43	132	25.0
	1938	3,050	718,265	747,966	31,447	31,820	56.7	2,657,062	1,448,351	321	80	128	24.2
Norfolk & Western .....	1939	2,169	637,316	666,637	35,466	27,684	56.9	2,336,905	1,227,064	279	56	29	8.0
	1938	2,178	551,191	568,236	25,092	22,374	58.8	1,795,720	931,939	261	72	37	10.0
Southern Region:													
Atlantic Coast Line .....	1939	5,077	545,486	547,647	7,676	10,905	63.3	632,880	222,482	228	37	108	29.0
	1938	5,079	457,183	461,277	6,775	9,112	64.1	523,555	185,122	244	42	92	24.3
Central of Georgia .....	1939	1,838	245,889	246,978	3,440	5,181	71.6	285,176	108,761	92	..	30	24.6
	1938	1,886	239,253	240,933	3,556	4,852	67.4	273,360	98,334	98	..	26	21.0
Illinois Central (incl. Y. & M. V.) .....	1939	6,537	1,129,172	1,133,640	20,862	32,311	62.4	2,037,265	814,745	524	101	230	26.9
	1938	6,540	1,200,735	1,206,441	21,412	32,356	62.9	2,050,088	827,112	601	34	224	26.1
Louisville & Nashville .....	1939	4,898	1,034,588	1,120,058	28,100	25,400	59.8	1,789,592	851,313	321	16	212	38.6
	1938	4,928	930,876	1,006,302	23,929	22,373	59.6	1,568,960	730,852	306	37	209	37.9
Seaboard Air Line .....	1939	4,305	470,951	483,992	4,100	11,639	67.0	672,689	261,014	209	30	61	20.3
	1938	4,305	428,480	434,616	3,809	10,355	65.4	599,559	227,855	212	34	60	19.6
Southern .....	1939	6,532	1,286,467	1,303,812	18,738	29,573	66.2	1,711,246	669,561	482	4	169	25.8
	1938	6,561	1,172,139	1,186,438	16,453	26,323	66.7	1,480,800	557,525	489	2	211	30.1
Northwestern Region:													
Chicago & North Western .....	1939	8,326	821,916	847,752	16,857	24,251	62.7	1,540,984	582,048	308	66	289	43.6
	1938	8,388	812,914	846,062	21,215	23,081	61.6	1,489,476	507,782	318	172	210	30.0
Chicago Great Western .....	1939	1,450	247,786	250,411	7,104	7,006	61.6	442,057	157,735	67	3	18	20.5
	1938	1,450	238,635	239,376	9,096	6,866	61.4	437,260	156,407	62	6	23	25.3
Chi., Milw., St. P. & Pac. ....	1939	10,934	1,217,204	1,265,689	49,366	34,208	61.2	2,230,997	886,993	433	66	159	24.2
	1938	10,943	1,202,626	1,245,863	55,235	33,200	61.3	2,163,106	857,306	444	82	154	22.6
Chi., St. P., Minneap. & Om. ....	1939	1,619	207,790	216,022	9,577	4,693	64.8	294,280	113,642	105	20	16	11.3
	1938	1,636	207,463	215,858	9,607	4,616	64.3	288,868	117,671	99	26	16	11.3
Great Northern .....	1939	7,976	771,853	766,141	25,209	26,816	59.9	1,941,933	828,402	338	49	160	29.3
	1938	7,976	671,979	663,443	23,425	22,604	63.9	1,544,606	652,886	310	58	172	31.9
Minneap., St. P. & S. St. M. ....	1939	4,265	358,908	364,326	3,440	8,516	64.0	504,659	198,735	105	..	31	22.8
	1938	4,273	346,898	351,163	3,172	7,594	64.2	443,290	169,874	111	..	37	25.0
Northern Pacific .....	1939	6,423	366,793	368,303	35,370	21,640	67.5	1,333,770	534,853	324	20	96	21.8
	1938	6,423	624,596	653,485	32,400	19,851	66.2	1,228,339	489,107	312	45	95	21.0
Central Western Region:													
Alton .....	1939	914	227,333	244,388	1,377	4,915	58.5	339,926	122,390	59	10	21	23.3
	1938	912	217,822	234,676	1,554	4,692	61.1	310,864	115,395	55	11	29	30.5
Atch., Top. & S. Fe. (incl. G. C. & S. F. & P. & S. F.) ..	1939	13,447	1,990,895	2,148,405	97,474	56,738	60.0	3,857,768	1,316,551	630	41	223	24.9
	1938	13,500	1,945,823	2,118,793	94,705	54,474	59.9	3,696,261	1,249,598	617	24	307	

# 1939. Compared with July, 1938, for Roads with Annual Operating Revenues Above \$25,000,000

1939, Compared with July, 1938, for Roads with Annual Operating													
Region, road, and year	Number of freight cars on line			Per cent un-serv-ice-able	Gross ton-miles per train-hour, excluding locomotives and tenders		Net ton-miles per train-mile	Net ton-miles per loaded car-mile	Net ton-miles per car-day	Car-miles per car-day	Net ton-miles per mile of road per day	Pounds of coal per 1,000 gross ton-miles, including locomotives and tenders	Loco-motive-miles per locomotive-day
	Home	Foreign	Total		Gross ton-miles per train-hour, excluding locomotives and tenders	Gross ton-miles per train-mile, excluding locomotives and tenders							
New England Region:													
Boston & Albany.....1939	1,128	3,994	5,122	3.5	20,781	1,256	432	19.5	321	25.2	4,483	148	51.0
1938	932	3,545	4,477	2.8	20,712	1,260	423	18.3	337	27.4	3,894	155	45.6
Boston & Maine.....1939	6,123	6,440	12,563	7.1	27,020	1,917	703	20.5	436	31.0	2,942	94	57.0
1938	8,312	7,368	15,680	13.7	25,603	1,890	697	19.8	329	23.3	2,599	94	38.8
N. Y., New Hav. & Hartf...1939	7,211	10,998	18,209	8.5	28,818	1,939	705	20.2	413	31.5	3,982	95	58.7
1938	10,075	9,118	19,193	18.5	27,671	1,898	664	19.3	320	25.7	3,293	92	50.8
Great Lakes Region:													
Delaware & Hudson.....1939	8,433	3,040	11,473	5.2	32,399	2,110	977	28.7	566	30.6	7,758	104	41.1
1938	9,725	2,511	12,236	5.2	29,018	1,945	889	27.5	445	24.5	6,371	119	33.7
Del., Lack. & Western....1939	12,243	5,141	17,384	13.9	36,114	1,989	769	22.1	444	29.2	7,993	123	56.7
1938	13,004	4,836	17,840	17.8	35,966	2,017	768	22.0	389	26.1	7,136	88	52.3
Erie (incl. Chi. & Erie)....1939	17,546	10,595	28,141	6.1	46,862	2,695	959	21.7	577	48.6	8,319	88	48.1
1938	18,062	12,183	30,245	8.8	45,242	2,688	950	21.6	577	41.1	7,480	88	70.8
Grand Trunk Western.....1939	4,877	9,725	14,602	11.8	33,854	1,675	529	20.6	353	30.7	3,691	88	66.0
1938	5,479	4,246	9,725	2.5	46,247	2,478	577	21.4	401	27.4	3,325	88	51.1
Lehigh Valley.....1939	9,924	6,837	16,761	2.5	46,247	2,535	1,054	26.3	436	25.6	6,629	92	65.9
1938	11,437	8,190	19,627	9.9	45,439	2,535	949	28.5	469	27.5	5,466	94	57.2
New York Central.....1939	90,138	59,385	149,523	19.7	38,463	2,267	866	26.2	373	60.0	7,046	79	84.0
1938	100,361	56,922	157,283	23.0	36,886	2,161	785	21.8	825	56.0	6,367	78	78.2
N. Y., Chicago & St. Louis.1939	6,654	7,852	14,506	4.1	41,665	2,183	761	21.6	753	26.9	3,098	73	71.6
1938	7,999	6,861	14,860	6.4	40,948	2,145	648	25.9	420	22.8	2,620	84	61.6
Pere Marquette.....1939	9,979	5,731	15,710	4.6	29,327	1,665	646	24.8	347	8.9	19,989	83	30.0
1938	11,167	4,749	15,916	5.0	28,272	1,691	646	50.1	267	6.3	13,447	77	25.1
Pittsburgh & Lake Erie....1939	9,434	7,846	17,280	39.3	53,349	4,021	2,294	47.1	177	39.8	4,854	104	73.0
1938	9,132	8,714	17,846	35.2	49,383	3,508	1,927	21.1	525	34.6	4,620	102	67.0
Wabash.....1939	13,416	9,071	22,487	12.2	37,888	1,885	654	21.1	479				
1938	15,910	8,138	24,048	8.4	36,758	1,851							
Central Eastern Region:													
Baltimore & Ohio.....1939	57,668	26,044	83,712	19.2	31,337	2,268	1,017	31.3	543	28.3	7,139	124	53.5
1938	61,693	21,064	82,757	20.3	30,359	2,174	951	29.9	446	24.1	5,836	124	45.0
Central of New Jersey.....1939	10,021	9,990	20,011	30.7	28,991	2,299	1,091	32.9	242	11.9	7,188	125	53.0
1938	10,577	9,534	20,111	33.0	27,762	2,362	1,100	32.7	225	11.5	6,613	111	60.5
Chicago & Eastern Illinois.1939	3,375	2,966	6,341	8.5	28,682	1,523	654	26.3	543	30.5	3,713	120	48.1
1938	3,443	2,536	5,979	9.8	25,600	1,353	565	24.6	453	26.5	2,936	108	46.0
Elgin, Joliet & Eastern....1939	8,005	2,762	10,767	5.3	16,918	1,818	855	35.6	205	9.7	5,778	106	39.7
1938	8,617	2,335	10,952	6.5	16,872	1,754	815	34.9	170	8.2	4,298	106	40.3
Long Island.....1939	286	3,049	3,335	5.2	5,693	831	322	30.1	72	4.5	615	330	36.1
1938	371	2,566	2,937	4.1	5,198	725	271	29.1	66	20.2	9,229	100	53.0
Pennsylvania System.....1939	199,694	52,688	252,382	23.3	40,416	2,664	1,154	29.4	366	17.6	7,848	102	45.0
1938	208,787	50,103	258,890	17.9	38,377	2,589	1,101	28.4	307	15.4	8,080	120	43.4
Reading.....1939	26,822	9,670	36,492	27.3	28,172	2,097	1,000	33.2	279	14.0	6,691	122	39.1
1938	26,735	8,312	35,047	19.6	26,960	2,048	951						
Pocahontas Region:													
Chesapeake & Ohio.....1939	44,515	12,230	56,745	3.0	60,322	4,050	2,220	47.2	1,032	39.4	19,535	64	62.0
1938	47,237	9,696	56,933	4.4	57,214	3,722	2,029	45.5	813	31.5	15,318	67	52.1
Norfolk & Western.....1939	34,842	5,016	39,858	4.4	56,867	3,703	1,944	44.3	975	38.6	18,249	83	67.8
1938	39,315	4,320	43,635	2.2	50,323	3,290	1,707	41.7	676	27.6	13,802	92	56.5
Southern Region:													
Atlantic Coast Line.....1939	14,918	6,715	21,633	20.9	21,842	1,169	411	20.4	333	25.8	1,414	106	50.8
1938	17,151	4,664	21,815	24.8	20,304	1,147	406	20.3	279	21.4	1,176	113	42.5
Central of Georgia.....1939	4,363	2,309	6,672	1.9	22,906	1,167	445	21.0	465	31.0	1,909	116	72.2
1938	5,024	2,278	7,302	1.4	22,022	1,150	414	20.3	366	26.8	1,682	114	69.2
Illinois Central (incl. Y. & M. V.).....1939	29,274	14,502	43,776	4.0	30,090	1,811	724	25.2	613	39.0	4,021	122	46.9
1938	35,472	14,985	50,457	16.1	28,566	1,716	692	25.6	538	33.5	4,080	117	49.6
Louisville & Nashville.....1939	37,222	8,615	45,837	22.4	28,633	1,732	824	32.7	487	25.0	4,784	114	63.5
1938	39,162	8,362	47,524	19.0	26,869	1,688	786	32.7	444	36.2	1,956	115	51.3
Seaboard Air Line.....1939	10,700	4,340	15,040	4.4	25,022	1,447	561	22.4	495	34.4	1,707	129	68.2
1938	11,055	3,565	14,620	3.6	23,596	1,418	539	22.6	548	36.6	3,307	129	56.4
Southern.....1939	22,841	16,823	39,664	11.7	23,885	1,338	524	22.6	548	34.8	2,741	133	56.4
1938	21,030	15,518	36,548	11.7	22,418	1,272	479	21.2	492				
Northwestern Region:													
Chicago & North Western...1939	37,609	20,226	57,835	9.6	30,385	1,948	736	24.0	334	22.2	2,255	101	46.2
1938	40,811	19,851	60,662	9.2	29,599	1,895	646	22.0	277	20.4	1,953	102	43.8
Chicago Great Western....1939	2,411	3,183	5,594	2.2	33,355	1,790	639	22.5	909	65.5	3,509	115	95.1
1938	2,613	3,478	6,091	3.0	33,181	1,840	658	22.8	867	62.0	3,480	111	91.1
Chi., Milw., St. P. & Pac...1939	44,214	17,872	62,086	2.8	30,381	1,845	733	25.9	468	29.5	2,617	108	70.4
1938	47,308	16,785	64,093	3.0	29,034	1,810	717	25.8	435	27.9	2,527	106	67.8
Chi., St. P., Minneap. & Om.1939	3,155	4,992	8,147	10.6	19,708	1,433	553	24.2	438	25.1	2,320	99	55.8
1938	3,914	5,519	9,433	9.3	19,091	1,415	576	25.5	411	31.0	3,350	93	52.1
Great Northern.....1939	36,935	10,808	47,743	5.9	37,940	2,526	1,077	30.9	573	24.5	2,641	103	45.4
1938	36,578	11,250	47,828	7.8	34,539	2,311	977	28.9	453	25.8	1,503	92	88.8
Minneap., St. P. & S. St. M.1939	12,854	4,031	16,885	8.0	23,731	1,409	555	23.3	386				



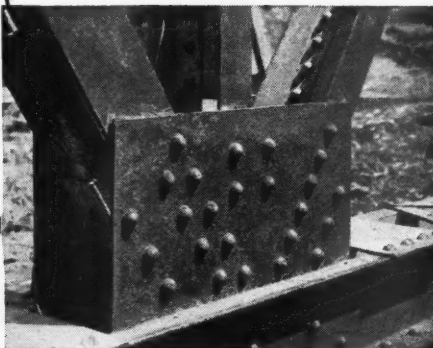
BEFORE



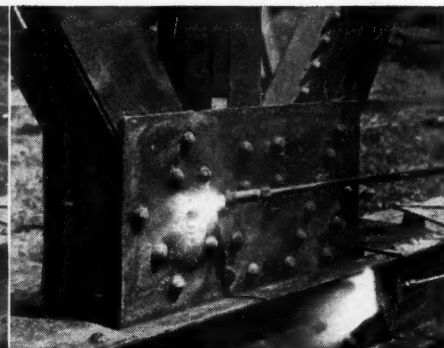
AFTER (Repainted)



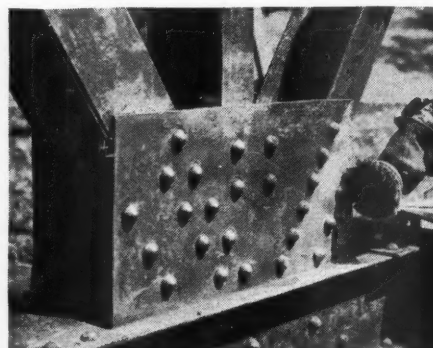
Built in 1907 for service over the old Erie Canal cut, Rochester, N. Y., this bridge was dismantled and stored out-of-doors for five years. It is now being reconditioned for re-erection elsewhere. » » » This Airco oxyacetylene process cockles old paint, frees rust and scale, drives off moisture and, after power wire-brushing, leaves a warm, clean, dry surface beneficial to a lasting paint job. Write for your copy of "Flame Cleaning and Dehydrating—the Paint-burning and Surface-conditioning of Old Steel Structures."



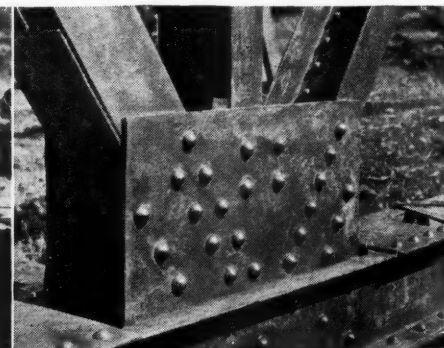
1. Close-up showing condition of surface prior to surface conditioning.



2. Airco Flame Cleaning and Dehydrating Process Paint-burning. Speedy results with round tip for rivet heads and irregular surfaces and flat tips for plane surfaces.



3. Power wire brush removing loose rust and scale and cockled paint.



4. Full Airco-process Paint-burned and surface-conditioned ready for repainting.

## AIR REDUCTION

SALES COMPANY

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Anything and Everything for GAS WELDING or CUTTING and ARC WELDING

